MARCH 1952

Commercial Refrigeration

AND AIR CONDITIONING

MAKE YOUR INSTALLATIONS PAY OFF ..... Page 34

BOOST YOUR SERVICE PROFITS ..... Page 36

STOP LOSING YOUR SHIRT ON ACCOUNTS RECEIVABLE ..... Page 39

OLD BUILDINGS MAKE GOOD PROSPECTS ..... Page 44

HOW CONTRACTORS CAN LICK FROST HEAVAGE ..... Page 46

THIS CONDITIONING JOB IS "ONE FOR THE BOOKS" ..... Page 50

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- SAVE $50.00—Condensing unit, coil, valve, and dryer are connected. READY TO PLUG IN!
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Check These Extra Guaranteed Features

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Full 3-inch Fiberglas Board Insulation (not loose filled).

Precision Built for Easy Erection. Metal Strapping on All Framing Joints.

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LINGLES' ESTABLISHED LINE OF PROFIT MAKING EQUIPMENT

- 1. Walk-in Coolers
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1700 Truman Road Phone: Victor 0308 Kansas City 6, Mo.

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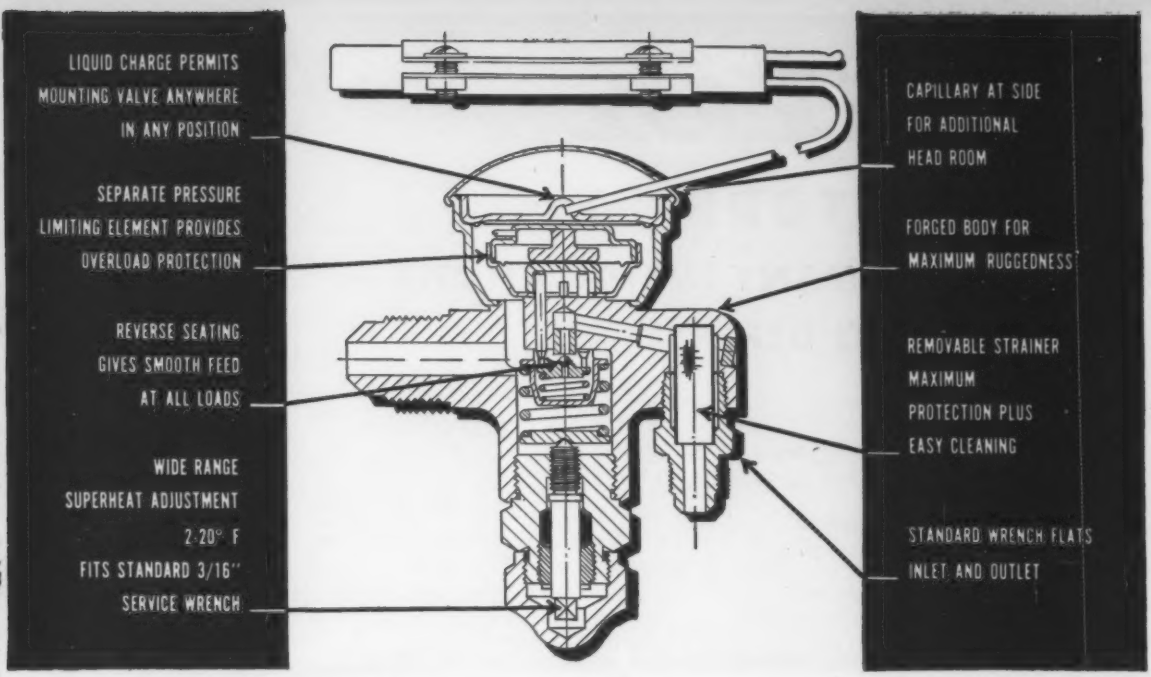
LIQUID CHARGE PERMITS MOUNTING VALVE ANYWHERE IN ANY POSITION
SEPARATE PRESSURE LIMITING ELEMENT PROVIDES OVERLOAD PROTECTION
REVERSE SEATING GIVES SMOOTH FEED AT ALL LOADS
WIDE RANGE SUPERHEAT ADJUSTMENT 2-20° F FITS STANDARD 3/16" SERVICE WRENCH
CAPILLARY AT SIDE FOR ADDITIONAL HEAD ROOM
FORGED BODY FOR MAXIMUM RUGGEDNESS
REMOVABLE STRAINER MAXIMUM PROTECTION PLUS EASY CLEANING
STANDARD WRENCH FLATS INLET AND OUTLET

ALCO

THERMO VALVES TYPE 402

FOR SMALL FIXTURES—ENGINEERED FOR SERVICE ENGINEERS

pressure limiting for motor protection

dependable, tested performance

simple, compact construction

402-4 for applications up to 1 ton F-12

wide superheat adjustment

space-saving size

402-2 for up to ½ ton F-12

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Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.

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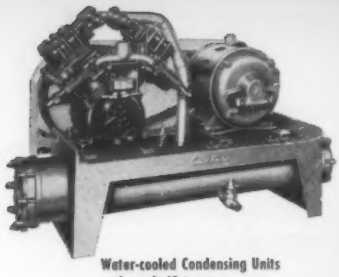
Curtis

DISTRIBUTORS

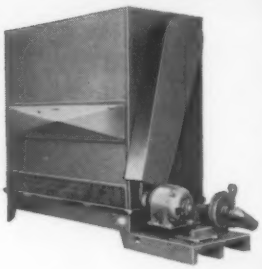
ARE MAKING MANY INSTALLATIONS IMPORTANT TO DEFENSE



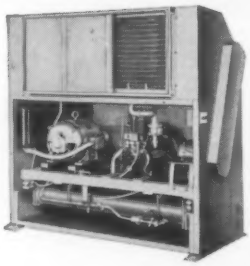
Water-cooled Condensing Units —through 40 tons

in

- Army, Navy, Air Force Projects,
- Industrial Processing,
- Research Laboratories,
- Commissaries,
- Storage Plants— Food, Biological, Chemical



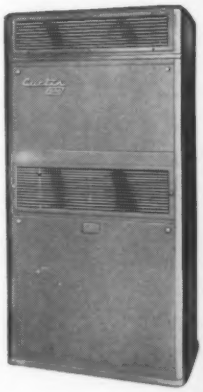
Evaporative Condensers, Cooling Towers and Air Handling Units to match



Central Type— 10-15 ton

The broad CURTIS line of Air Conditioning, Temperature and Humidity Control equipment enables CURTIS distributors to *quote* and *get* many of these installations.

With Condensing Units through 40 HP . . . Evaporative Condensers . . . Cooling Towers and Air Handling Units to match, CURTIS distributors can handle *more jobs, make greater profits.*



Package Type— 2-4-6-8 ton

Some Franchises are Open. Pin this coupon to letterhead and mail for complete information

Curtis REFRIGERATION AIR CONDITIONING COMMERCIAL

Curtis Refrigerating Machine Division
of Curtis Manufacturing Company
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I am interested in exclusive Curtis Franchise. Send complete details.

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MARCH, 1952

VOLUME 9, No. 3

Commercial Refrigeration

AND AIR CONDITIONING

Established 1944 as
THE REFRIGERATION INDUSTRY

THIS MAGAZINE has no official affiliation with ANY group, society or association.

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AND AIR CONDITIONING

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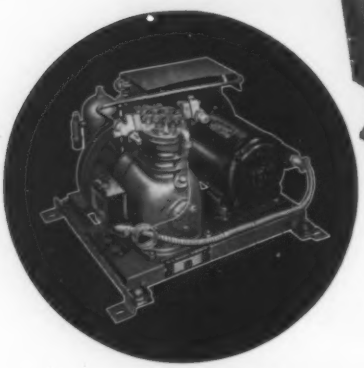
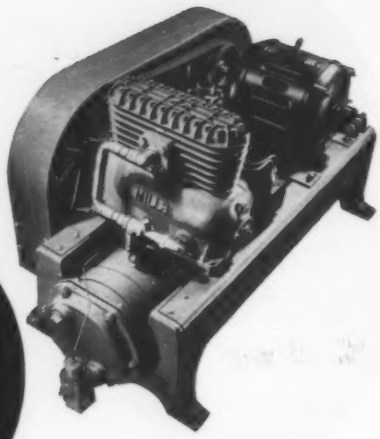
Published monthly by REFRIGERATION PUBLICATIONS, INC., an affiliate of INDUSTRIAL PUBLISHING Co., publishers of APPLIED HYDRAULICS, FLOW, INDUSTRY & WELDING, OCCUPATIONAL HAZARDS and PRECISION METAL MOLDING. Member, Controlled Circulation Audit, Inc. Not responsible for unsolicited editorial material.

Subscription rates: United States and possessions—$3.00 per year, $5.00 for 2 years; Canada—$4.00 per year, $6.00 for 2 years; Single copy price, 30 cents. Foreign subscriptions $5.00 per year, except the United Kingdom. United Kingdom subscriptions £1.10 per year, payable in Sterling to our London Office. All subscriptions subject to individual acceptance by the publisher.

Acceptance under Section 34.64, PL&R, authorized at Milwaukee, Wisconsin.

CREAM RISES TO THE TOP





● Given time, cream always rises to the top . . . it is so in all fields of endeavor.

Through the years since the first Mills Refrigeration Units were made 17 years ago, they have been awarded first place by men who looked for lasting results, long range economy, and reliability.

Time has proved that Mills Refrigeration Units made to give superior performance, have always been conservatively rated and ruggedly constructed to run on and on with little or no attention.

With shortage of man-power for servicing—it has never been so important or practical to insist on Mills for satisfactory refrigerating and air conditioning service.

Like the cream in the bottle, Mills Units remain at the top.

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MILLS INDUSTRIES, INCORPORATED · 4100 Fullerton Avenue, Chicago 39, Illinois

MILLS

LONG LIFE REFRIGERATION *UNITS*

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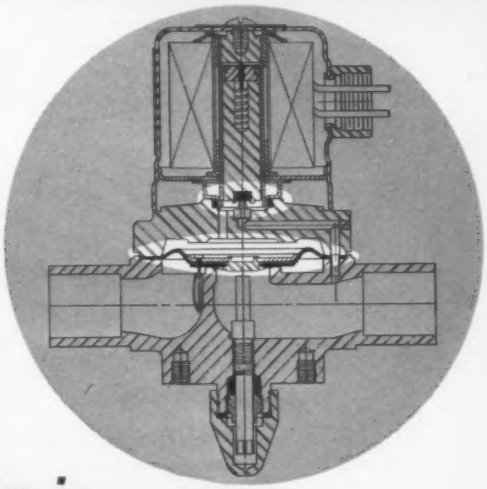
JE SOLENOID VALVES

Made Better to Serve Better

A SERIES OF DEPENDABILITY FEATURES

No. 1 Tight Seating



THESE PILOT-OPERATED VALVES have a composition main seat disc and a composition pilot seat disc. These materials were selected in cooperation with the U. S. Government and thoroughly tested in life breakdown tests.

This new JE design offers tight seating at any pressure within the operating range, and there is no "bubble tolerance" in our assembly, or testing lines. To make sure these Valves close tightly at all times, we have introduced "spring loaded" closing action.

5 Features of Dependability in JE SOLENOID VALVES

1. **TIGHT SEATING** — No bubble tolerance
2. **SIMPLICITY** — Only two moving parts
3. **LONG LIFE** — Cool Coils
4. **DURABILITY** — All corrosion-resistant materials
5. **OPENING PRESSURE DIFFERENTIAL** — — higher than most others on the market.

May we submit samples for your test and approval? Write today for details.

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CONTROLS DIVISION
4427 GERALDINE AVE. • ST. LOUIS 15, MO.

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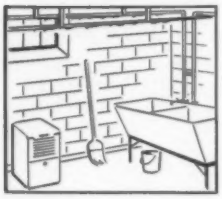
Now...you can SPONGE UP year 'round Profits

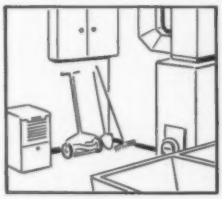
WITH THE NEW Westinghouse DEHUMIDIFIER

WHAT IS IT? The Westinghouse Dehumidifier is a small, inexpensive appliance that's portable, plugs in anywhere to suck the moisture right out of the air . . . up to 3 gallons of water every 24 hours.

WHERE YOU SELL IT—Wherever (in home or business) floors are wet, where walls are damp or where air has that unhealthy musty smell . . . YOU HAVE A PROSPECT.



Basements . . . To stop wet floors and dripping pipes.



Utility Rooms . . . To prevent damp air from rusting valuable equipment.

Hobby Shops . . . To stop mildew, damp rot and rust.

Over-all Dimensions—24⅞"x14⅝"x19⅜"

WHAT WILL IT DO?

- Sends damp rot down the drain
- Stops needless repairs and replacements
- Controls moisture for only a few cents a day
- Easily pays for itself

HERE'S HOW WESTINGHOUSE HELPS YOU SELL

To help you sell the Westinghouse Dehumidifier, your distributor has a complete Selling Kit, 2DH-8701, which contains the following:

- **Four-color Floor, or Window Display**
- **Specification Sheets**
- **Selling Folders**
- **Tell-All-Tags**
- **Plan of Action**

Stock This Profitable Appliance . . . Get Your Selling Kit . . . Check Your Distributor For All Details

See this new profit appliance at your distributor's preview during the week of March 3.

WESTINGHOUSE ELECTRIC CORPORATION
Electric Appliance Division . . . Springfield 2, Mass.

. . . of course, it's electric!

YOU CAN BE SURE... IF IT'S Westinghouse

Refrigerator • Dishwasher • Waste-Away • Iron • Roaster • Electric Shoot • Fan • Toaster • Water Heater • Food Crafter • Bongo • Electric Griddle • Cleaner • Laundromat • Home Freezer

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Circle No. 7 on Reader Service Card for more information

PERFECTIONIST . . .

A real mechanic . . . a born mechanic. To you a job that is "all right" just isn't good enough. You demand perfect workmanship in materials and tools. And you are quick to recognize the work and products of other perfectionists.

Bonney wrenches are the work of such men. That is why mechanics call Bonney wrenches America's finest — unmatched for lightness, strength, balance, and precision.

Bonney wrenches are the pride of the men who make them . . . the pride of the men who use them.

BONNEY FORGE & TOOL WORKS
Allentown, Pennsylvania

BONNEY
TOOLS

The perfectionist is exemplified in the men who build and service the planes and engines that have made such names as Consolidated, Douglas, Lockheed . . . Pratt & Whitney Aircraft, Wright . . . United, Pan American, TWA . . . synonymous with safe travel.

Up to 60 tons capacity

2 to 6 ton range

17 Sizes of

MARLEY AQUATOWERS

one for every water cooling job

Steel or Wood

THE NEW DOUBLE-FLOW AQUATOWER

50 tons or more capacity

The only *complete* line of "packaged" water cooling towers is the AQUATOWER line. In the 2 to 6 ton range, Marley offers Model 23 and 33 Aquatowers —small, compact units that soon pay for themselves in any service requiring as little as 6 gpm.

For intermediate capacities, you can choose from 8 standard size Aquatowers that fit any cooling requirement in that capacity range, indoors or out.

On jobs requiring 50 or more tons of refrigeration, Marley offers the NEW DOUBLE-FLOW AQUATOWER, the lowest silhouette, lowest pumping head tower. In this newest cooling tower, one fan utilizes air from two completely open sides, combining great efficiency and power economy.

Aquatowers in all sizes conform to building codes. Small and medium-sized units are shipped completely assembled and Double-Flow Aquatowers are prefabricated for ease of construction.

For complete information, call the Marley representative in your city or write for Bulletin AQ-52.

producers of

DOUBLE FLOW TOWERS
DRICOOLERS
AQUATOWERS
NATURAL DRAFT TOWERS
CONVENTIONAL TOWERS
SPRAY NOZZLES
VAIRFLO TOWERS
DOUBLE FLOW AQUATOWERS

MARLEY

The Marley Company, Inc.

WORLD'S LEADING PRODUCER OF WATER COOLING TOWERS

Kansas City 5, Missouri

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You'll like these EXCLUSIVE SELLING ADVANTAGES!

Brunner Five Year Protection Policy
No.
We hereby make the following warranty to and agree to the following Five Year Protection Plan with, the original purchaser-user only of BRUNNER Equipment, Serial No.
, bearing the BRUNNER trademark, under the following provisions:
STANDARD ONE-YEAR WARRANTY
WE WARRANT the BRUNNER equipment bearing above serial number sold by us and all parts thereof to be free from defects in material or workmanship under normal use and service. Our obligation under this warranty shall be limited to furnishing, F.O.B. at Utica, N.Y., a replacement for any part of said equipment which proves thus defective within one year from date of original installation, which is returned to us F.O.B. Utica within said period, and which our examination shall disclose to our satisfaction to be thus defective.
FIVE YEAR PROTECTION PLAN FOR BRUNNER COMPRESSOR ONLY
In addition to the one-year warranty on the aforesaid BRUNNER equipment, we also agree to repair, replace or exchange at our option F.O.B. Utica, N.Y. for the original purchaser-user only, at any time during the five years following date of delivery to the original purchaser-user, if compressor body or defective part be returned prepaid to Utica, N.Y., such defective compressor or part thereof, if it is proved to our satisfaction to be (subject to Force Majeure as hereinafter provided) defective in material or factory workmanship. Compressor body or defective parts must be returned with proper Brunner Application for Warranty, and bearing in which BRUNNER compressor is connected such as cooling coils, compressor controls, refrigerant metering devices, refrigerant, etc. This Five Year Protection Policy does not include labor charges incidental to the replacement of parts. Such policy further does not include any
GENERAL CONDITIONS
Performance by us under this warranty and Five Year Protection Plan is contingent upon reasons beyond our control and we shall not be liable for any default or delay in performance thereunder caused by any contingency beyond our control including war, governmental restrictions or restraints, strikes, fire, floods or short or reduced supply of raw material.
The term "original purchaser-user," as used herein, shall be deemed to mean that person, firm, association or corporation for whom the BRUNNER equipment referred to herein is originally installed or for us.
This Five Year Protection Plan applies only to BRUNNER compressors installed within the United States.
The foregoing warranty and Five Year Protection Plan are expressly in lieu of all other warranties expressed or implied and of all obligations or liabilities on our part, and we neither assume nor authorize any other person to assume for us any other obligations or liabilities in connection with the sale of said BRUNNER condensing unit, BRUNNER compressor, or any part or parts thereof, and said warranty and Five Year Protection Plan shall be void if said BRUNNER equipment, or any part or parts thereof, shall be operated in connection with the sale of said BRUNNER condensing unit, BRUNNER compressor, or any part or parts thereof, and said warranty and Five Year Protection Plan shall be void if said BRUNNER equipment, or any part or parts thereof, shall be operated in connection with any other person, firm, association or corporation, or if the serial number has been altered, defaced or removed.
BRUNNER MANUFACTURING COMPANY
Utica, New York
By
Title

Look what Brunner has to offer...

A FIVE YEAR PROTECTION POLICY

Only Brunner Dealers, at their option, can offer this 5 Year Protection Policy on the Brunner "open type" compressors installed in all four models of Brunner Air Conditioners. This exclusive and absolute protection available to your customers removes every question as to "what's the best buy in air conditioning".

3 STYLES...4 SIZES

BAC Style "S"—Cooling section, blower section and plenum, front discharge and air return grilles.

BAC Style "D"—Cooling section, blower section with top duct connection, front air return grille.

BAC Style "R"—Cooling section, front air return grille. No fan section.

Hundreds of satisfied customers will vouch for the dependable operation of Brunner air conditioners in all sections of the country. The large number of units sold and the service satisfaction given their buyers is ample evidence that BRUNNER is a line with unusual customer acceptance. When you are known as the Brunner Dealer customers will be *asking you* about Brunner Air Conditioners.

DIRECT MAIL LITERATURE! Selling Aides to Help You Tell Your Customers—QUICK!

In addition to a forceful advertising program in leading magazines read in your area, Brunner offers their dealers sales-clinching literature for direct mailing. If you are in business to make money, *write the factory today and ask for the 1952 Brunner Air Conditioner Selling Program.*

BRUNNER SINCE 1906

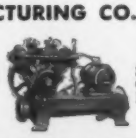
AIR CONDITIONERS

Self Contained Models in 4 Sizes and in 3 Styles... 3, 5, 7½, 10 hp. Capacities.

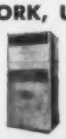
BRUNNER MANUFACTURING CO., UTICA 1, NEW YORK, U. S. A.

BRUNNER SINCE 1906

REFRIGERATION
Condensing Units from ¼ hp. to 75 hp. 69 Air and Water Cooled Models.



AIR CONDITIONING
Self Contained Units to 10 hp. Condensing Units for Remote Installation to 75 hp.



AIR COMPRESSORS
Single stage ¼ hp. to 2 hp. Two stage 1½ hp. to 15 hp. Horizontal and Vertical Models.

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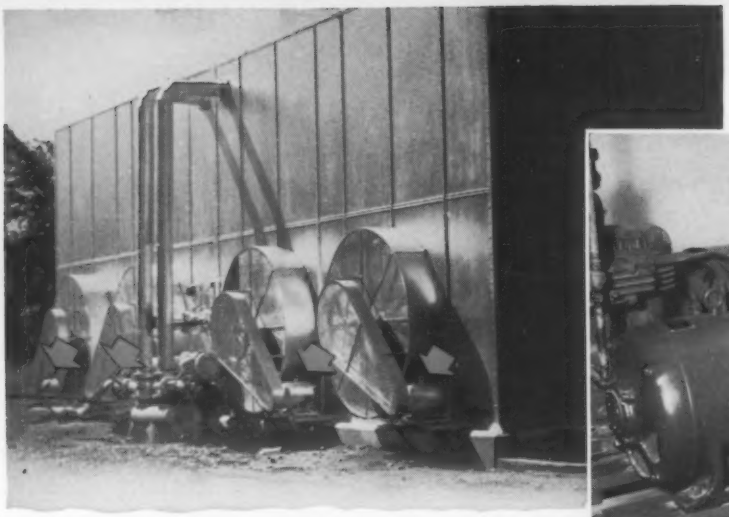
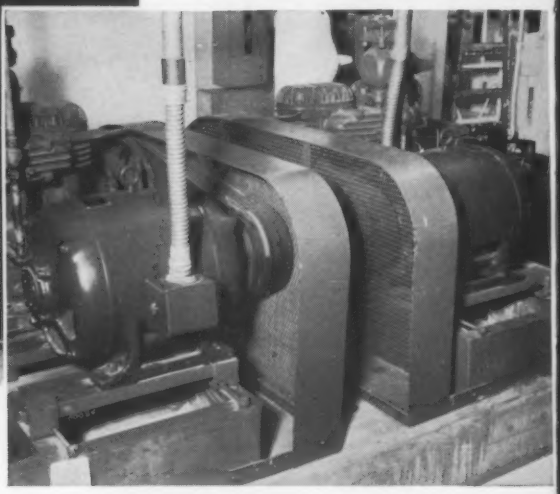


Four Century 5 horsepower splash proof motors driving fans.



Two Century 30 horsepower motors driving refrigeration compressors.

Century

TYPE SC-
SQUIRREL CAGE MOTORS

⅛ to ¾ horsepower

1 to 1½ horsepower

2 to 15 horsepower

20 to 125 horsepower

150 to 400 horsepower

Equipment Producers Select Century Motors

To Give You Long-Life Performance With Least Down-Time

The correct selection of the right combination of motor type, speed, power, torque, frame and mounting keeps Century motors on the job.

Team work between your motorized equipment producers and Century motor engineers means that you always get the right motor—selected from Century's wide range of types and kinds, in sizes from ⅛ to 400 horsepower for single or polyphase alternating current and direct current. You can be confident that you get top performance from the fine equipment these motors drive.

Skillful application makes sure that Century motors meet the exacting requirements of the machines they drive. That's your assurance of dependability.

CENTURY ELECTRIC CO. 1806 Pine St., St. Louis 3, Mo.
Offices and Stock Points in Principal Cities

CE-690R

Specify Century C MOTORS for all your electric power requirements

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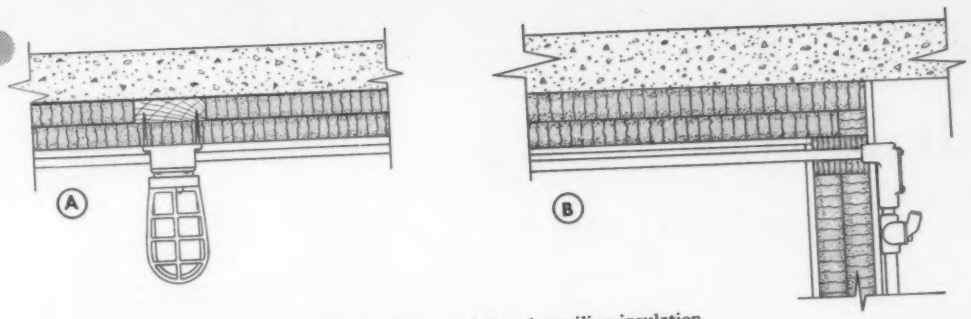
FROM OUR NOTEBOOK OF INSULATION CONSTRUCTION



A Conduit is carried under ceiling insulation. Wooden block is attached to ceiling before insulation is applied, furnishes solid support for fixtures.

B All wiring should be brought into cold room in one conduit, piercing the wall insulation only once. Special condulet seals out warm air, prevents icing in conduit.

How to install electrical wiring in cold rooms

When the electricians arrive to wire a cold room, they often find insulation completely applied and no provisions made for the wiring. Faced with this, they can do nothing but wire the room from outside, dropping outlets through the ceiling wherever lights are needed.

This is not the best practice in low-temperature work. Metal conduits are good heat conductors, and each conduit lowers efficiency. Warm air and moisture also flow in to condense and freeze on the insulation and electrical fixtures. Icing may also occur inside the conduit. Eventually, both insulation and electrical work suffer damage.

It is usually up to the insulation contractor to take steps to see that wiring will not lower the efficiency of his installation. He must plan with the wiring in mind and make provisions for it.

Where light fixtures are suspended from the ceiling, this should be done as illustrated in diagram (A) above. Since insulation does not provide firm enough support for mounting the fixtures, wood blocks are placed at predetermined locations on the ceiling in the first layer of corkboard insulation. Conduits and fixtures can then be anchored through the next layer to these blocks.

All wiring should be brought into the room through a single conduit (see diagram B) so that the insulation is pierced only once. The inside of the conduit is then sealed at this point, using special sealing condulets which can be poured with wax.

An unbroken insulation seal is necessary for efficient cold room performance. Equally important, the insulating material itself must be of excellent quality. Armstrong's Corkboard is such a material. It has high moisture resistance, outstanding strength. It handles easily, cuts cleanly to form tight-fitting joints. It won't shrink, swell, warp, or harbor vermin. These features all add up to trouble-free service for your customers—the kind of service that boosts your reputation for top-quality refrigeration work.

Find out how Armstrong's Corkboard can save you time, trouble, and money in low-temperature installations. Contact your nearest Armstrong representative or write direct to Armstrong Cork Company, 5303 Concord Street, Lancaster, Pennsylvania.

ARMSTRONG CORK COMPANY

Makers of Armstrong's Corkboard and Cork Covering

Circle No. 11 on Reader Service Card for more information

WHY *DESTROY*

Expensive Equipment by using Destructive Substances?

Chemicals that EAT their way out of Metal, Wood or Plastic Containers are injurious to the very surfaces that they are intended to treat. If a glass container should be accidentally broken, the contents could do untold damage to valuable property!

SOLVEX

(In tablet or granular form)

LOWERS HIGH HEAD PRESSURE QUICKLY
(And May Be Used While Plant Is In Operation)

REMOVES RUST, SCALE, ALGAE
And Other Encrusting Matter from Condenser Tubes and Water Jackets in 1 to 5 Days.

CLEANS SCALE AND CORROSION FROM EVAPORATIVE CONDENSERS, BOILERS, HEATERS, TANKS . . . AND KEEPS 'EM CLEAN!

BE SAFE! USE SOLVEX!

ECONOMICAL AND SAFE TO CARRY TO CLEANING JOBS

SOLVEX Is A Very Effective CLEANING AGENT FOR AIR CONDITIONING and REFRIGERATION SYSTEMS

Manufactured by

CHEMICAL SOLVENT COMPANY

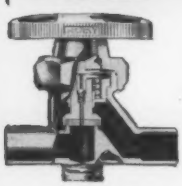
3005 16th STREET • BIRMINGHAM, ALABAMA

Circle No. 12 on Reader Service Card for more information

HENRY LINE VALVES really give you something extra

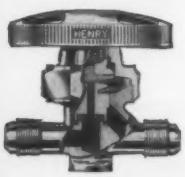
They give more dependable service because of advanced field-proven design and construction as well as patented features.

PACKLESS VALVES
FOR FREON
with Exclusive Balanced-Action



STANDARD TYPE

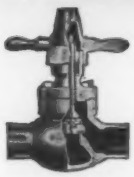
Ball check in balancing channel permits diaphragm inspection and replacement with valves under line pressure. Sizes, ¼" thru ⅝" flare; ¼" thru 1⅝" O.D. Solder, ¼" thru 1" F.P.T.



BLUE BANTAM TYPE

Same as standard Balanced-Action valve except that diaphragms cannot be inspected or replaced under line pressure. Size ¼" thru ⅝" flare and O.D. Solder.

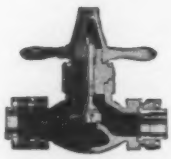
PACKED VALVES
FOR FREON
Bronze-Wing Cap Type



Globe and angle types with solder connections, bolted bonnets, sizes ⅞" thru 5⅛" O.D.

SEMI-STEEL WING CAP TYPE

With bolted bonnets and square companion flanges. Furnished with brass tailpieces (O.D. Solder) 1⅜" thru 5⅛" or with steel tailpieces for welding to pipe, sizes 1¼" thru 5".



Also Globe and angle types with F.P.T. connections, sizes ½" thru 2".

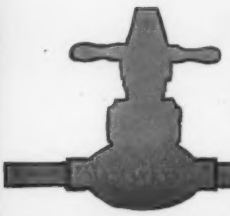
PACKED VALVES
FOR AMMONIA
Permanent-Mold Iron and Semi-Steel

Compact and strong with self-aligning stem disc. Sizes (F.P.T.), screw bonnet: ¼" thru 1", bolted bonnet 1¼" thru 2"—with flange connections 1¼" thru 5".

HENRY—Standard equipment by leading Manufacturers, Army, Navy, Coast Guard and Maritime Commission • Stocked by Leading Jobbers

WRITE FOR CATALOGS

HENRY VALVE CO.



HENRY VALVE CO. CONTROLLING FLOW SINCE 1914

Valves—Driers—Strainers—Control Devices and Accessories for Refrigeration, Air Conditioning and Industrial Applications

MELROSE PARK, ILL. (CHICAGO SUBURB)
CABLE: HEVALCO, MELROSE PARK, ILLINOIS

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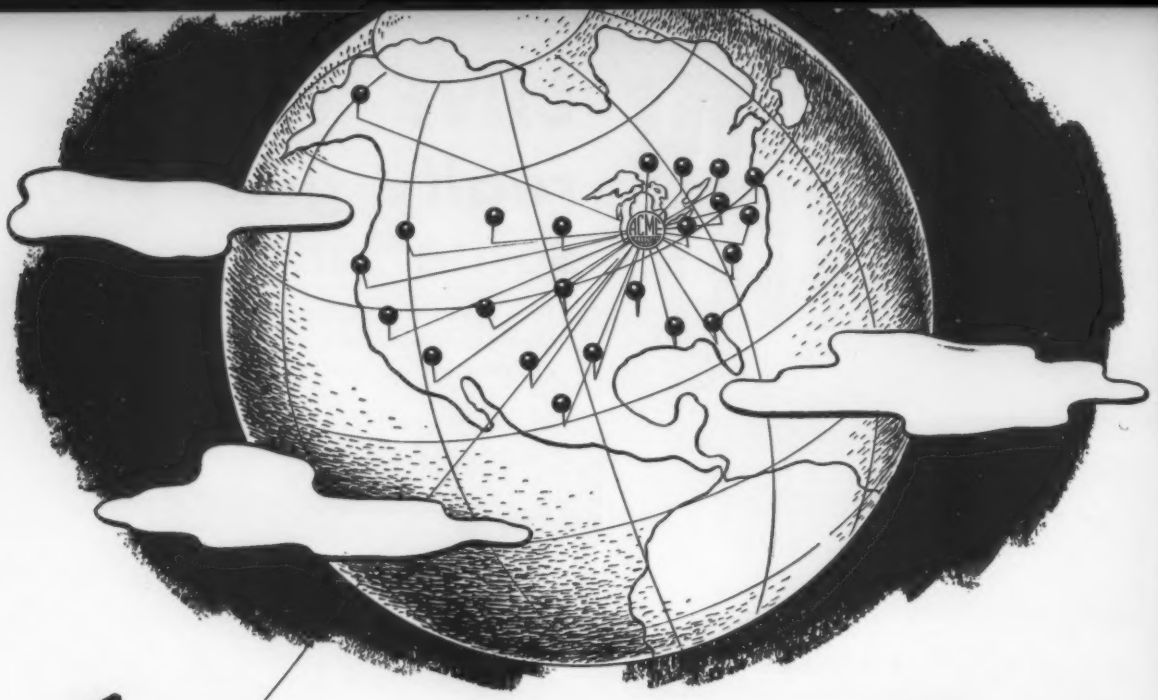


Acme products are in use *Everywhere*

In every major industrial center, you will not have far to go—to see a successful and efficient installation of *ACME* Refrigeration or Air Conditioning equipment. In offering practical solutions to temperature control problems, *ACME* Engineers have had an opportunity to study normal and abnormal temperatures, humidity and prevailing conditions. From this long experience *ACME* Engineers have developed a line of refrigeration and air conditioning components that meet practically every requirement of the Refrigeration and Air Conditioning Industry. Whatever your immediate problem may be, the chances are that the nearest *ACME* representative can show you an actual installation of *ACME* products which is successfully meeting requirements similar to yours. *ACME* Products have been tried and are in actual use in practically every climate under practically every possible condition. You can depend on this long established and time tested line of major refrigeration components to give you efficient, low cost, long lasting service.

THE COMPLETE *Acme* LINE INCLUDES

Freon Shell and Coil, Shell and Tube and Ammonia Condensers.
***Dry-Ex Water Coolers**
***Hi-Peak Water Coolers**
Heat Exchangers
Unit Coolers
Oil Separators
Convectors
***Flow Cold Liquid Chillers**
Evaporative Condensers
Cooling Towers
Liquid Receivers
Air Handling Units

* TRADE MARK

Free Consultation with ACME Engineers is yours for the asking.
Write ACME INDUSTRIES, INC., Dept. C F, Jackson, Michigan

ACME PRODUCTS

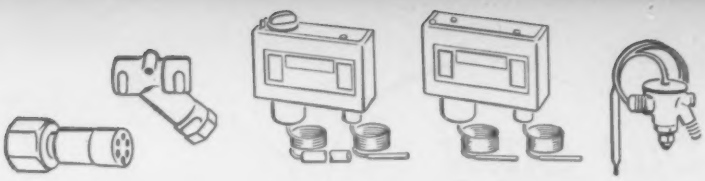
ACME INDUSTRIES, INC., JACKSON, MICHIGAN, U.S.A.

Refrigeration and Air Conditioning Division

CONTINUOUSLY SERVING THE AIR CONDITIONING AND REFRIGERATION INDUSTRY SINCE 1919

Free Consultation with ACME Engineers is yours for the asking.
Write ACME INDUSTRIES, INC., Dept. CF, Jackson, Michigan

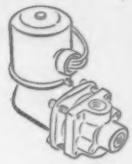
Circle No. 14 on Reader Service Card for more information



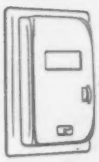
General Controls

FOR REFRIGERATION AND AIR CONDITIONING

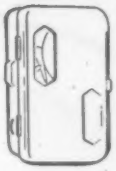
V-200 SERIES
SIX VALVES IN ONE!

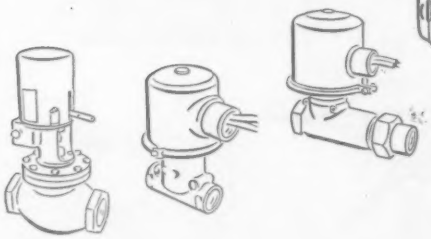


Thermostatic Expansion Valves . . . For High or Low Temperature Application



FREON
METHYL-CHLORIDE
SULPHUR DIOXIDE





FEATURED IN A FAMILY OF FAVORITES

V-200 Valves control the flow of liquid refrigerants into cooling units. Positive in shut-off, they are simple in design and respond to the slightest temperature changes. Adjustable orifice cartridge makes it possible for these valves to be adjusted to any one of six capacities, without interchanging the valve itself. Semi-liquid charged, V-200's operate on high or low back pressure and corresponding temperatures and are available in ½, 1, 2, 3½ and 5 ton capacities.

GENERAL CONTROLS

801 ALLEN AVENUE GLENDALE 1, CALIFORNIA

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls

FACTORY BRANCHES: Baltimore 5, Birmingham 3, Boston 16, Buffalo 3, Chicago 5, Cleveland 15, Columbus 15, Dallas 2, Denver 4, Detroit 21, El Paso, Glendale 1, Houston 6, Indianapolis 4, Kansas City 2, Milwaukee 3, Minneapolis 2, Newark 6, New Orleans, New York 17, Omaha 2, Philadelphia 23, Pittsburgh 22, St. Louis 3, San Francisco 7, Seattle 1, Tulsa 6, Washington 6, D. C.
DISTRIBUTORS IN PRINCIPAL CITIES

Circle No. 15 on Reader Service Card for more information

Use this extra selling tool to close more refrigeration and air conditioning sales

YOU increase your cash by lowering notes receivable, you get "brand name" financing, fast credit approval and the benefit of both nationwide and local facilities with the COMMERCIAL CREDIT PLAN.

YOUR customers benefit, too, by getting immediate possession, two to three years to pay, and reasonable rates.

Write, wire or phone your nearest COMMERCIAL CREDIT office today

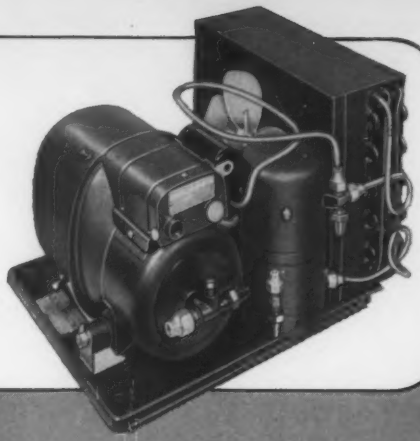
We can show you how many distributors and dealers are already making extra profits and progress by using the COMMERCIAL CREDIT PLAN. A phone call to our office in your city will bring complete details. Or wire or write COMMERCIAL CREDIT, 14 Light Street, Baltimore 2, Md.

COMMERCIAL CREDIT CORPORATION

A subsidiary of Commercial Credit Company, Baltimore . . . Capital and Surplus over $120,000,000 . . . offices in principal cities of the United States and Canada.

Circle No. 16 on Reader Service Card for more information

"Why Always Servel SUPERMETIC?...



I'll Tell You Why..."

SUPERMETIC IS QUIET
— rests securely on its flexible mountings — runs smoothly with an absolute minimum of vibration.

SERVEL FORCE-FEED LUBRICATION
Keeps every working part fully protected — prevents excessive wear and friction — assures longer problem-free performance.

SUPERMETIC IS COMPACT
— easily installed in any fixture — easy to check — free of complicated, troublesome mechanisms — saves valuable space.

OIL-FREE REFRIGERANT
rules out oil "slugging" damage of running parts — maintains high capacity and efficiency.

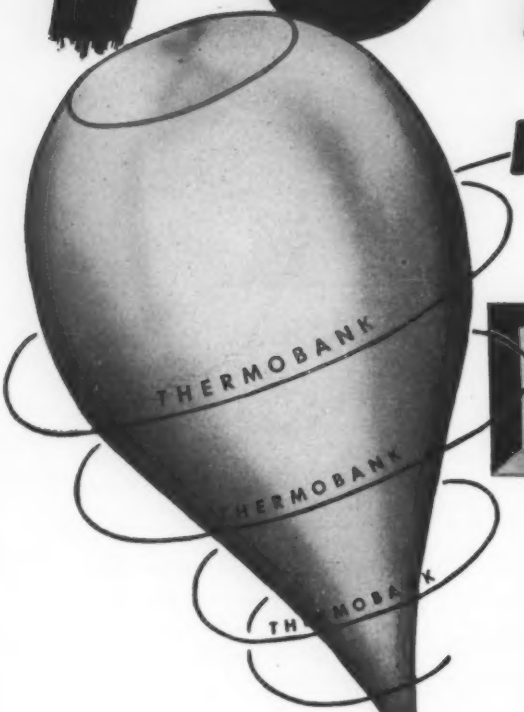
Right! And don't forget Servel's famous low-cost Five-Year Protection Plan . . . Servel's nation-wide network of 92 authorized wholesale suppliers . . . Servel's 30-year reputation for soundest refrigeration engineering and all-around reliability — all good reasons why it will pay you to always specify Servel electric condensing units. Models for every commercial refrigeration and air-conditioning use . . . ⅓ to 5 HP.

SEND NOW FOR FREE MANUALS —
— write Dept. A-22, for new sales literature and installation data. Or see your Servel wholesaler now.

SERVEL, Inc., Electric Refrigeration Division, EVANSVILLE 20, INDIANA

Circle No. 49 on Reader Service Card for more information

TOPS IN THE FIELD!



THERMOBANK

Reg U. S. Pat. Off.

by KRAMER

The outstanding development in the refrigeration field in the past decade.

The standard of the industry for complete automatic defrosting at temperatures below 32°.

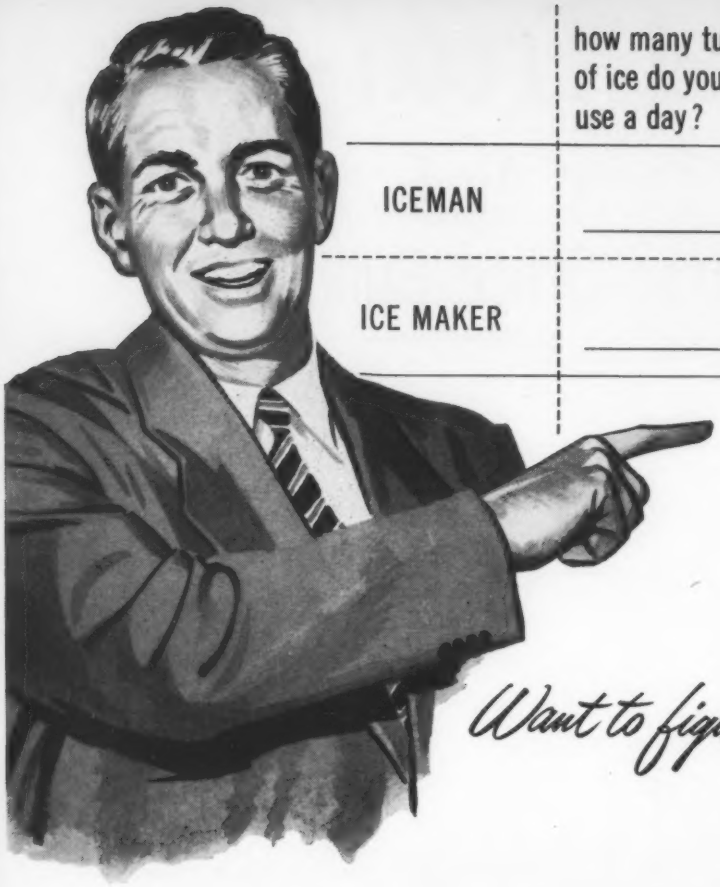
SPECIFY THE BEST.. SPECIFY....

Write for Bulletin R-124

THERMOBANK ---THE STANDARD OF THE INDUSTRY

KRAMER TRENTON CO. • Trenton 5, N.J.

Circle No. 47 on Reader Service Card for more information



	how many tubs of ice do you use a day?		price per 40-lb. tub		total daily cost of ice
ICEMAN	_____	×	_____	=	_____ (A)
ICE MAKER	_____	×	6¢	=	_____ (B)
			SAVINGS		_____ (A minus B)

Want to figure on a sure sale?

You'll get a pretty profit picture by getting prospects to put a pencil to the spaces above . . . by letting them *see* how much they can save by buying their ice from an Ice Maker instead of an iceman.

It's a fact. A Carrier Ice Maker makes 40 pounds of ice for about 6c worth of water and electricity at average rates. By adding pennies to their electric bills, ice users can save up to a hundred dollars a month, depending upon how much ice they use.

It's a strong sales story that can't miss. And we're advertising it to *your* prospects. Hospitals, taverns, clubs, butcher shops, hotels and restaurants are learning of the tremendous savings and other benefits of the Carrier Ice Maker.

And this new Ice Maker is really *loaded* with other benefits. It delivers both ice cubes *and* crushed ice—has a built-in crusher that takes no extra space and is adjustable for coarse, medium, or fine ice. And, unlike other ice-making machines, the Carrier Ice Maker stores both kinds in a divided bin that keeps each separate. At the turn of a dial, either type of ice is automatically delivered to its own compartment.

Don't miss this opportunity. If you aren't in the act, get in now. Write us. Carrier Corporation, Syracuse 1, New York.

The Carrier Ice Maker, with crusher. Divided bin, two sizes: 160, 240 lbs. Compact and quiet, it makes up to 450 lbs. of ice in only four square feet of floor space.

Carrier

AIR CONDITIONING · REFRIGERATION · INDUSTRIAL HEATING

Circle No. 17 on Reader Service Card for more information

Economical "Freon"-Charged

Provides Zoned Air Conditioning in Texas Office Building

Clean-cut, modern design of Perry-Brooks building made possible by air conditioning throughout.

The Problem. When owner-builde E. H. Perry, Sr., planned the modern 12 story Perry-Brooks building in Austin Texas, he well realized the value of year round, summer-and-winter air condition ing. In discussing construction details wit the architectural firm of Kuehne, Brook and Barr & Associates, it was agreed tha a zoned air conditioning system installe as an integral part of the structure woul prove both an economic measure and fa more satisfactory than the assembly o equipment in various "leftover" areas.

The Solution. Further round-tabl consideration of specific requirement prompted the air conditioning contracto —Climate, Inc., Austin—to recommen design of a well-zoned system based en tirely upon installation of "package units." It was explained that this could be done a comparatively low cost and without in any way sacrificing quality or operating effi ciency.

The proposed system called for thirty-si zones; three to a floor in north, south and central locations of the structure. It wa determined that these zones would ade quately provide conditioned air through out the 300 rooms occupying 64,000 squar feet of floor space.

The Installation. Specially designe equipment rooms, constructed on each floor, house a total of twenty-three 5-ton Worthington "Freon-12," and seven 7½ ton Worthington "Freon-22" "package units." These are factory-assembled ma chines of standard commercial type . . compact, clean and quiet. Combined, the installation totaled 132½ tons of refriger ation and is designed to provide econom ical cooling, dehumidification, ventilation circulation, cleaning and heating of air.

Zoned cooling control is through a stand ard off-fan-cooling switch furnished with

Photographs: Courtesy Worthington

"Package Unit" System

Executive offices have individual air discharge outlets attractively installed in plenum ceilings.

the units. Heating control is pneumatic, by means of a 3-way valve at each hot-water coil—as shown in photo in right-hand column. Each of the units contains a two-row heating coil. A cast-iron hot-water boiler, induced draft cooling tower and two Worthington condensing water pumps are located on the roof of the building. Hot-water piping is insulated only on the roof outside conditioned areas. Elsewhere, pipe heat-loss is picked up by conditioners in the equipment rooms.

Air distribution is through C-1 Anemostats. There are no return-air or fresh-air ducts in the system. Fresh air is taken in at each equipment room through manually controlled louvers. Air is returned to the units by way of plenum ceilings equipped with air grilles, and there are single flapper valves in the ceiling of each office. The supply air duct on the top floor is insulated, but on other floors similar ducts are surrounded by return air flowing through the plenum ceilings. No door grilles are used, eliminating noise and drafts in corridors. As there are no large duct risers nor horizontal runs, the need for heavy duct material was also eliminated, and the aluminum used for ducts amounted to only 150 pounds per ton of refrigeration.

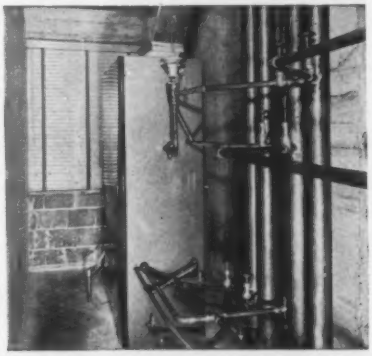
The entire installed system of thirty-six separately controlled zones cost approximately $600 per ton . . . a considerable saving compared with a conventional central system for a modern office building of this type. That efficiency was not sacrificed for economy has been amply proved by experience. The installation dependably maintains comfort cooling at temperatures of from 73° to 76°F., even when outside temperature during summer months may hover around 105°F.!

A big advantage of a "package unit" system of this description is that it provides excellent zone control of conditioned air the year round at very low cost and with minimum maintenance.

The Outlook. Air conditioning has a promising future . . . of that anyone can be certain. The growth of the industry during the past twenty-five years has been little short of phenomenal. What began as a luxury enjoyed by relatively few is now well within reach of almost every building owner in the land.

The many available types of air conditioning equipment—safely operated with "Freon" refrigerants—permit large and small installations that economically and efficiently meet a wide variety of needs. Manufacturers of such equipment are doing a good job of selling their machines to property owners. Several companies advertise extensively to likely prospects for air conditioning, and refrigeration, too, in commercial, industrial and various other fields. And all such promotion and publicity aid in furthering the growing demand for new installations.

That is why it is a good plan—now—to look over prospects in your own district. List every proposed building construction job . . . note those already under way which may not have let air conditioning contracts . . . record old buildings, stores, theatres, offices, factories, homes, churches. All



One of the 5-ton Worthington "package units" in typical equipment room of north zone on 11th floor.

are prospects well worth cultivating.

Follow up your leads by letter, phone or personal visit. And when you talk with prospective buyers . . . recommend equipment charged with "Freon" refrigerants. Your customers will welcome your advice, for these refrigerants are safe . . . nonflammable, nonexplosive, virtually nontoxic, of pure, uniform quality and 100% dependable. They help prolong the life of the equipment and assure its satisfactory operation. In addition . . . "Freon" safe refrigerants meet all building-code requirements. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Del.

DU PONT
REG. U. S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

KINETIC

"FREON" SAFE REFRIGERANTS

"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon refrigerants.

Pump and Machinery Corporation

Circle No. 18 on Reader Service Card for more information

Sell
BOTH

Remington
4-SEASON

WINDOW
and
CONSOLE
MODELS

- PROFIT two ways: sell more prospects . . . enjoy twice the profit on every Remington Console sale!
- *SELL* the INDUSTRY'S MOST COMPLETE LINE of *both* window and console models . . . 70 models . . . from ⅓ to 1½ HP . . . a model for every prospect *need* . . . a need for every *model* . . . yet you need stock *ONLY SIX!*

Write for name of your Remington Distributor TODAY! Remington Air Conditioning Corp., 62 Willey St., Auburn, N. Y.

Remington
4-SEASON
AIR CONDITIONING
DIVISION OF REMINGTON CORP.
AUBURN, N. Y.

Circle No. 19 on Reader Service Card for more information

LETTERS

Help Wanted!

EDITOR:

For some time now I have been attempting to locate some fairly accurate information on the required sizes of refrigerators and freezers on different types of installations:

Is there available any data which contains—1. Cubic feet of walk-in meat storage necessary per person or per meal, or per day? 2. Cubic feet of walk-in vegetable storage necessary per person, or per meal, or per day? 3. Cubic feet of walk-in dairy storage necessary per person, or per meal, or per day? 4. Cubic feet of freezer necessary per person, or per meal, or per day? 5. Does the overall storage requirement drop in proportion to reach-in refrigeration available?

I feel sure that somewhere engineers have developed standards to work by. Any information you may have will be greatly appreciated.

WM. C. MANK
J. P. Pfeiffer & Son, Inc.
Baltimore, Md.

Have any of our readers developed information along this line, or know of a reliable source from which it might be obtained? None of the sources to which we have gone thus far has been able to supply this information. Any suggestions will be welcomed.

Hermetic Parts, Tools

EDITOR:

We are interested in learning of sources for sealed unit parts and special tools suitable for sealed unit repair. Please advise us from whom we might purchase these items.

O. B. LUND
The O. B. Lund Co.
Havre, Mont.

Sealed unit parts and special tools suitable for this work can be obtained from the following companies: Sealed Unit Parts Co., 261 East 161 St., Bronx, N. Y.; Wagner Tool & Supply Co., 40-08 22nd St., Long Island City 1, N. Y.; Delavan Mfg. Co., 3009 6th Ave., Des Moines 13, Iowa.

(More letters on page 24)

BUY FROM YOUR REFRIGERATION WHOLESALER

A Statement by Anaconda on the Copper Situation

MANY users of copper have vital decisions to make . . . usually in connection with the present defense-induced shortages of copper and aluminum. This statement is an effort to remove the smoke screen surrounding the copper picture . . . to wipe away the confusion caused by too much talk supported by too few facts.

Substitution poses problems – Industry has been urged to substitute aluminum and other materials for copper. In some instances this may be logical and practicable. In many others it is difficult, if not impossible. But – before making *any* long-term decisions that may cost a great deal of money in engineering, new plant facilities or rescheduling of production operations – one should know the facts about the future of copper.

New Anaconda projects – The first major increase in copper production will come from Anaconda when the Greater Butte Project and the new Sulphide Plant at Chuquicamata, Chile, begin operations this spring. By 1953, these two projects should raise present levels of copper production by about 95,000 tons yearly.

Toward the close of 1953, Anaconda's new Yerington project in Nevada is expected to start producing at an annual rate of 30,000 tons. By then, Anaconda will be adding to the present yearly copper supply at the rate of about 125,000 tons.

Other new projects – During 1954-55 still other new projects in the U. S. and friendly foreign countries will further augment the increasing copper supply. All told, it is estimated that by 1955, not less than 450,000 tons of copper could be produced annually – over and above present production levels.

Accordingly, in 1955-56, domestic production plus imports could bring the U. S. copper supply to 1,800,000 tons yearly. This would represent an increase of about 20% over present levels. Based on historical comparisons, and barring a large-scale shooting war, this amount of copper could support a Federal Reserve Board Index of Industrial Production of 270, an increase of 24% over the present, and 45% above the first half of 1950.

• • •

These are the 'things to come' in copper. On the basis of the facts there is no necessity for considering long-range substitution of other materials for the red metal.

52320A

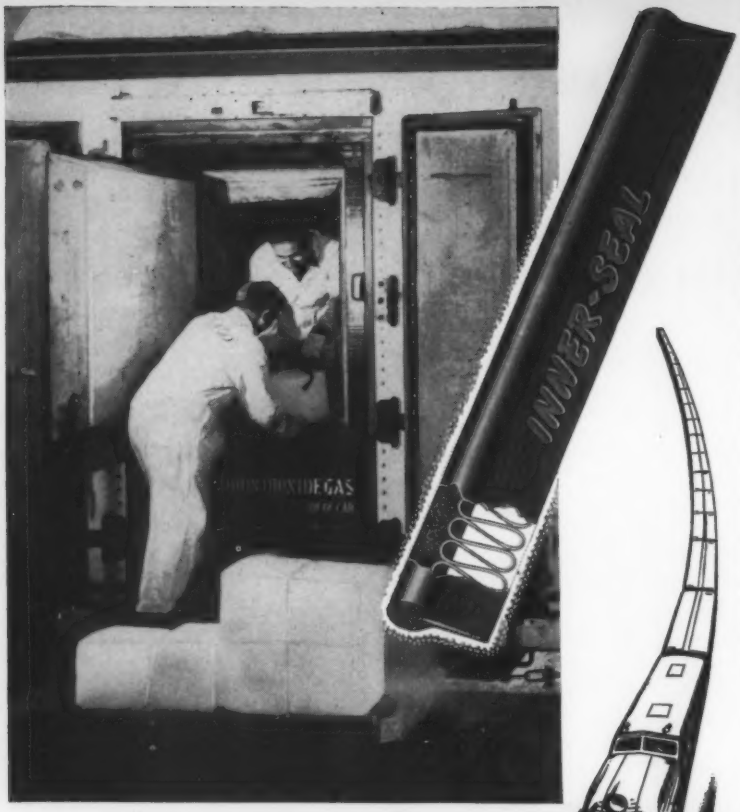
ANACONDA
COPPER MINING COMPANY

The American Brass Company
Anaconda Wire & Cable Company
International Smelting and Refining Company
Andes Copper Mining Company
Chile Copper Company
Greene Cananea Copper Company

PRODUCERS OF: Copper, Zinc, Lead, Silver, Gold, Cadmium, Vanadium, Superphosphate, Manganese Ore, Ferromanganese.

MANUFACTURERS OF: Electrical Wires and Cables, Copper, Brass, Bronze and other Copper Alloys in such forms as Sheet, Plate, Tube, Pipe, Rod, Wire, Forgings, Stampings, Extrusions, Flexible Metal Hose and Tubing.

Circle No. 20 on Reader Service Card for more information



Even at 110° below zero, cold cannot slip out!

In spite of the 110° below zero temperature within these Pure Carbonic dry-ice refrigerator cars, INNER-SEAL practically eliminates evaporation loss.

It provides a tight, long-lasting seal that does not crack or harden under extremes of heat or cold. Compared to ordinary weatherstripping it has cut Pure Carbonic's evaporation loss from 25% to 3%.

The reason for this difference lies in INNER-SEAL's exclusive construction.

As you can see in this cutaway, INNER-SEAL's base is *live sponge rubber*. That is why it compresses . . . bounces back to shape. Never cracks like hollow strips, never mats.

The flange is *woven spring-wire* . . . so flexible it fits corners like a glove.

The *waterproof neoprene coating* is weather-resistant, resists grease, oil and abrasion.

FREE samples . . . data on sizes, shapes, colors, scores of locomotive, passenger and refrigerator car uses.

STROBOSCOPE OF "JUMP TEST" PROVES INNER-SEAL SEALS TIGHTER, LASTS LONGER!

Springy live rubber is the reason. Action-stopping stroboscopic photos prove it. Both ends of a strip were pressed together, then released . . . resulting in the lively spring action you see.

INNER-SEAL Live Rubber

WEATHERSTRIPPING

STAYS LIVELIER LONGER . . . SEALS TIGHTER

BRIDGEPORT FABRICS, INC., BRIDGEPORT 1, CONN.

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LETTERS

(More letters on page 22)

Custom-Made Bars

EDITOR:

As subscribers to your magazine, we are interested in finding who manufactures the Penguin Custom Refrigerated Bars for office use.

We have had an inquiry from one of our customers, and cannot seem to locate this item in our files.

L. F. KAVANAUGH
Owner-Manager
The Keystone
New Bedford, Mass.

The Penguin Custom Built Refrigerated Bar is manufactured by Springer Industries Inc., 13-15 131st St., College Point, N. Y.

BOOK REVIEW

Title: **Engineers' Illustrated Thesaurus**

Author: **Herbert Herkimer**

Publisher: **Chemical Publishing Co., Inc., New York, N. Y.**

Price: **$6.00**

A compilation of more than 8000 illustrations of machine elements and assembled machinery to aid the engineer, designer, draftsman, and manufacturer in selecting the machine parts or equipment most suitable for his special purpose. This volume also will serve as an efficient guide for students and beginners.

Every conceivable type of machine element is clearly reproduced and identified. Where necessary, an explanation of the method by which it accomplishes its particular function is given. An exhaustive alphabetical index saves much page thumbing.

The simple and logical arrangement of the material by subject matter makes it possible to find the information needed in the shortest possible time.

In addition to sections covering comfort heating, cooling, and air conditioning, other classifications included are: electrical appliances, industrial processes, transportation, prime movers, combustion, transmission of liquids and gases, material handling equipment, basic mechanical movements, supports and structures, adjusting devices, and fasteners.

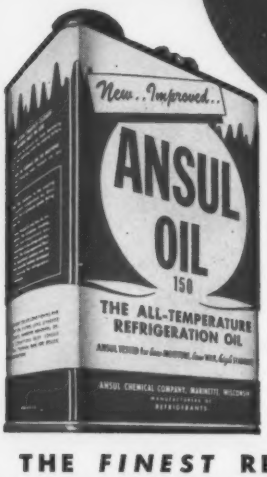
SULFUR DIOXIDE • METHYL CHLORIDE •

DISTRIBUTORS OF DU PONT "FREON" REFRIGERANTS

Manufacturers and distributors of quality refrigeration products since 1915.

ANSUL REFRIGERANTS AND REFRIGERATION PRODUCTS

REG. U. S. PAT. OFF.



ANSUL OIL

THE *FINEST* REFRIGERATION LUBRICATING OIL *at any price!*

The *NEW* IMPROVED All-Temperature Refrigeration Oil — is sold exclusively by leading refrigeration wholesalers everywhere.

BUY IT NOW AT THE NEW LOW PRICE. Use it for more dependable, trouble-free lubrication.

Ansul leads the nation and supplies the FREE WORLD with highest quality Refrigerants and Refrigeration Products.

Ansul's Sulfur Dioxide, Methyl Chloride, and Refrigeration Oil are endorsed by leading service men, wholesalers, and manufacturers everywhere. They have met every challenge of the industry with confidence aided by the unsurpassed dependability and "on the job" technical service which is part of the Ansul guarantee.

Ansul is a national leader in the distribution of Du-Pont's (Kinetic) "Freon" products. Users turn to Ansul for all their Refrigerant needs and enjoy the benefits of dealing with pioneers and leaders in the field of Refrigeration.

There is an Ansul Wholesaler near you. Take your problems to him. The help of his organization of capable technicians, with the backing of the entire research and engineering staffs of Ansul Chemical Company, are yours for the asking — at no cost or obligation.

Ansul has greatly increased its Research facilities — expanded its Research Program — and added new modern Pilot Plant facilities to better serve the Refrigeration Industry.

ANSUL
CHEMICAL COMPANY
REFRIGERATION DIVISION
MARINETTE, WISCONSIN

ANSUL SULFUR DIOXIDE • ANSUL METHYL CHLORIDE
ANSUL OIL • KINETIC "FREON" REFRIGERANTS • ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS • DRY CHEMICAL FIRE EXTINGUISHERS

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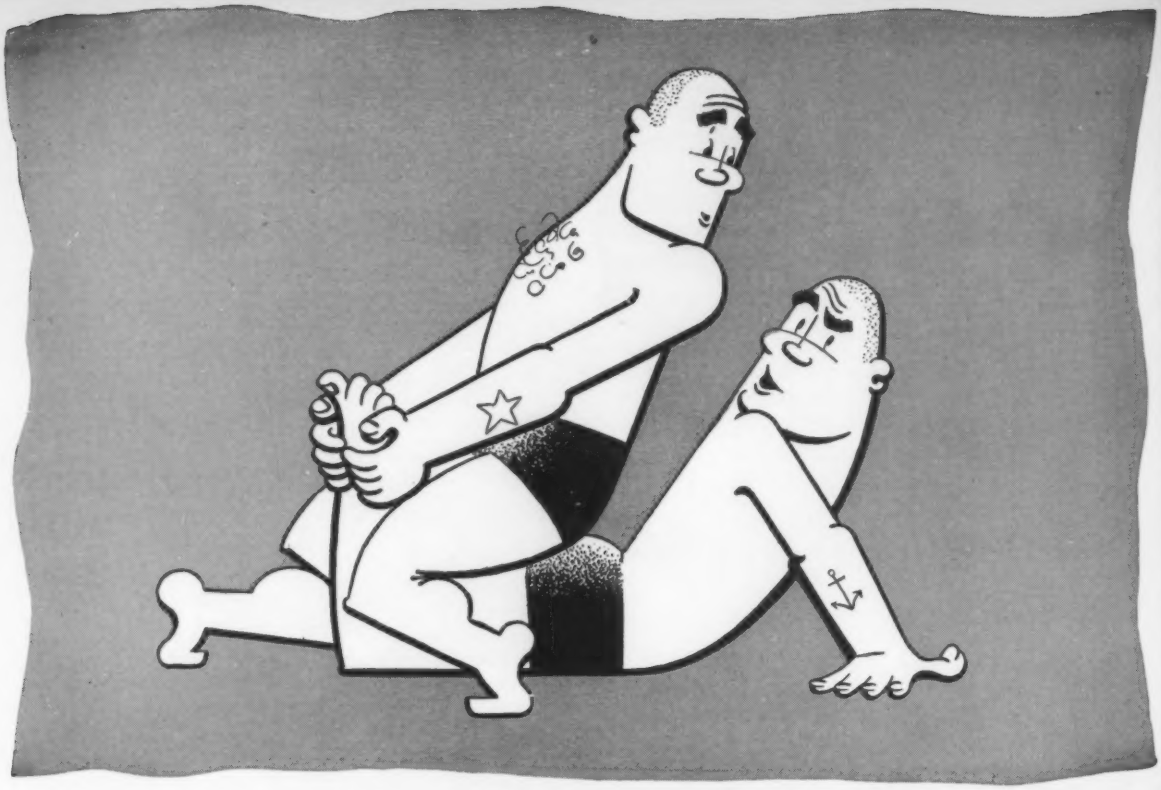

IT'S MUCH EASIER BENDING

DRYSEAL

REFRIGERATION TUBE

● There's no need to pull and haul when you work with dead-soft Dryseal. It is bent with the hands with little effort. It is this soft temper and its ductility that make it easy to flare for compression fittings without splitting.

Another very important feature of Dryseal is the double-crimp seal at each end of the tube. This is done in the manufacturing and keeps dirt and moisture from entering the tube. The seal is made in such a way as not to change the diameter of the tube so that it can pass through any opening large enough for the tube itself.

And, for your greater convenience we have just recently brought out Dryseal in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal . . . is easier to handle, light weight, economical.

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COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

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Quality-Engineered by

TYPHOON

DEPENDABLE EQUIPMENT FOR YOUR AIR CONDITIONING NEEDS

SELF-CONTAINED UNITS
SC MODELS 5 AND 81

CONSOLE UNITS
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SELF-CONTAINED UNITS
SC MODELS 82 AND 10

SELF-CONTAINED
(REMOTE) UNITS
SC MODELS
15 AND 20

EVAPORATIVE
CONDENSERS
EC MODELS 3-5-8

EVAPORATIVE CONDENSERS
EC MODELS 10-15-20

AIR HANDLING UNITS

PACKAGED
WATER CHILLERS

HEAT PUMPS

Whether the job calls for a single packaged air conditioning unit or a central plant . . . a packaged water chiller or a heat pump — you can count on Typhoon equipment to supply your needs. And Typhoon's quality engineering — backed by over 40 years of experience — is your guarantee of trouble-free performance.

Satisfied Typhoon users include famous companies like RCA, Grand Union Stores and Whelan Drug Stores. They've found Typhoon equipment tops in economical operation . . . tops in cooling efficiency. You will, too.

ALSO — WINDOW UNITS, BOILERS, COILS AND MULTI-PACKAGED SYSTEM UP TO 60 TONS.

Write for Detailed Information

TYPHOON AIR CONDITIONING CO., INC.

794 Union Street, Brooklyn 15, N. Y.

Specialists in Air Conditioning Since 1909

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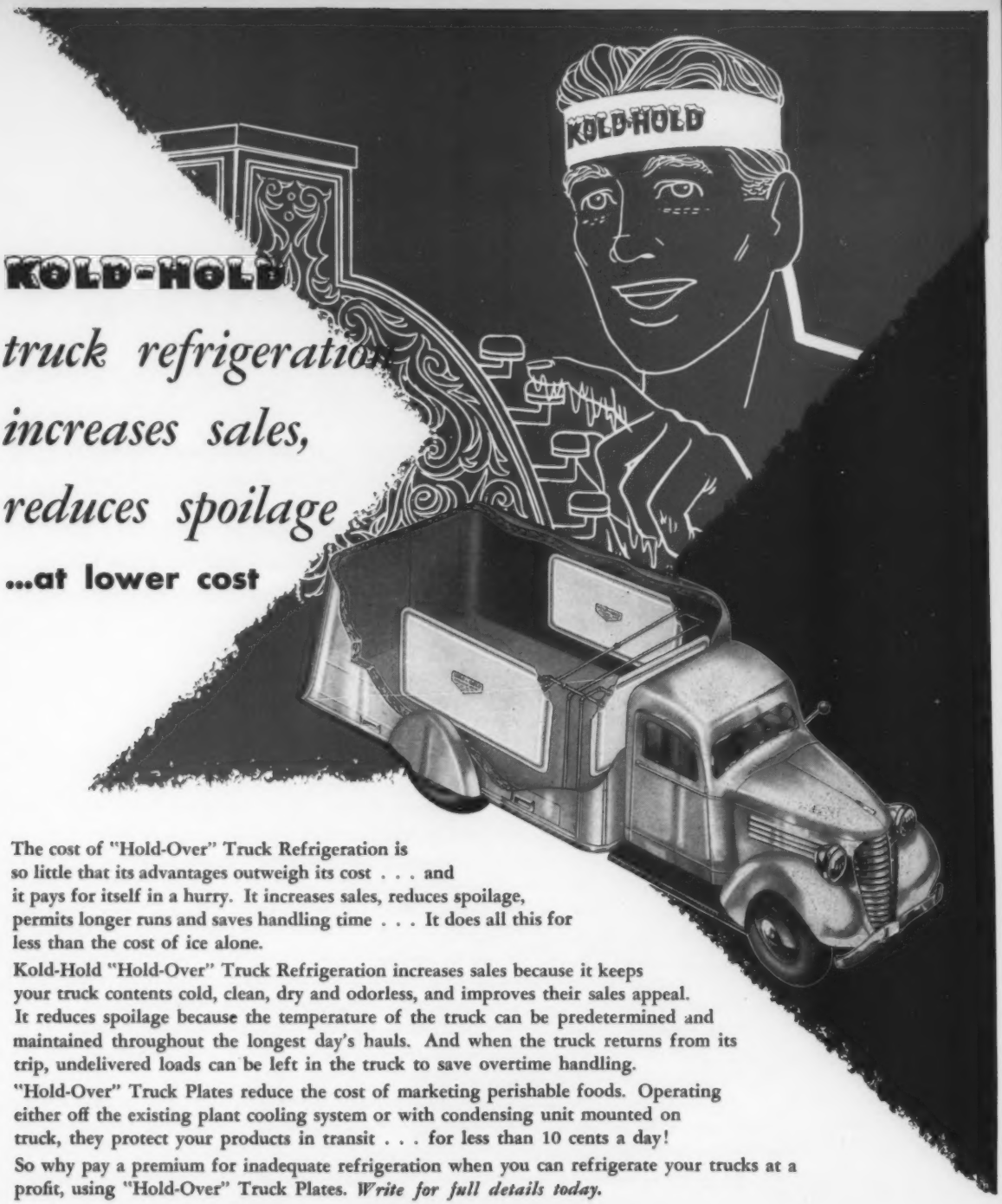

KOLD-HOLD

truck refrigeration

increases sales,

reduces spoilage

...at lower cost

The cost of "Hold-Over" Truck Refrigeration is so little that its advantages outweigh its cost . . . and it pays for itself in a hurry. It increases sales, reduces spoilage, permits longer runs and saves handling time . . . It does all this for less than the cost of ice alone.

Kold-Hold "Hold-Over" Truck Refrigeration increases sales because it keeps your truck contents cold, clean, dry and odorless, and improves their sales appeal. It reduces spoilage because the temperature of the truck can be predetermined and maintained throughout the longest day's hauls. And when the truck returns from its trip, undelivered loads can be left in the truck to save overtime handling.

"Hold-Over" Truck Plates reduce the cost of marketing perishable foods. Operating either off the existing plant cooling system or with condensing unit mounted on truck, they protect your products in transit . . . for less than 10 cents a day!

So why pay a premium for inadequate refrigeration when you can refrigerate your trucks at a profit, using "Hold-Over" Truck Plates. *Write for full details today.*

KOLD-HOLD — *protects every step of the way*

KOLD-HOLD MANUFACTURING COMPANY

new 1200 amp. AMPROBE

Take the new Amprobe "1200" into your hand. Compare it with any other high-current volt-ammeter. You'll quickly recognize the advanced engineering and design that have gone into the "1200".

ELIMINATES ERRORS: Exclusive doughnut-type transformer eliminates for all practical purposes the factor of error due to position of conductor. COVERS NINE RANGES: 0-15/60/150/300/600/1200 (yes, 1200) amps AC, 0-150/300/600 volts. SAFER: Probe jaws insulated right down to the sockets. Voltage test lead plug automatically insulates itself when removed from meter. MORE CONVENIENT: So compact, carry it in your pocket!

Only $67.50, with leather case and leads. Also Amprobe "600", up to 600 amps, $59.50. Pyramid Instrument Corp., Lynbrook, New York.
(Export Division: 458 Broadway, New York City. Cable: Morhanex).

AMPROBE®

the only pocket-size snap-around volt-ammeter

WRITE TODAY: Dept. CR32

Pyramid Instrument Corp.
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☐ *Send Bulletin No. 128, describing new Amprobe Models "1200" and "600".*

☐ *Send 16-page manual of time-saving uses: "Servicing with the Amprobe".*

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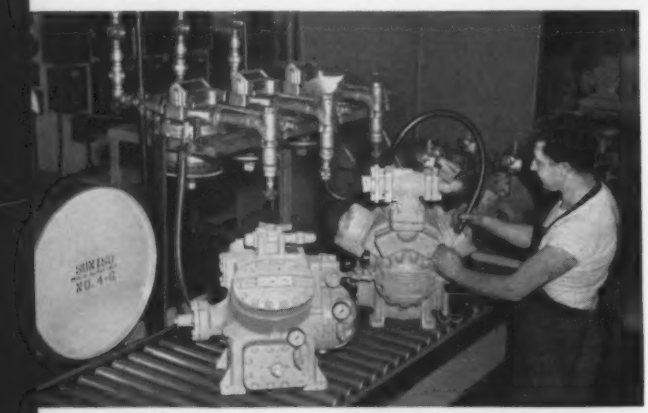
MANUFACTURERS' CHOICE OF SUNISO PROVES IT BEST FOR SERVICEMEN

Their Technical Staffs Have Confirmed the "Job Proved" Quality of Suniso Refrigeration Oil

A 10-YEAR TEST of two compressors run on Suniso Oil was recently completed by an important maker of domestic compressors. Careful examination showed all cylinders, connecting rod bearings, pistons and valves to be good as new after approximately 80,000 hours' operation. And no gum or sludge had formed.



SUNISO ENDS SUBZERO WAXING. Several years ago one of the leading companies making large industrial compressors found that its refrigeration oil was "waxing out" at low temperatures. It then ran tests on a variety of competitive oils. Its exhaustive laboratory analyses proved that when used with Freon, Suniso had a lower wax separation point than any other oil. The company has used Suniso for eight years with complete satisfaction.

Genuine Suniso is available to the service trade through authorized Kelvinator Dealers, and wholesalers supplied by Virginia Smelting Company

SUNISO REFRIGERATION OILS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL

SUNOCO

NO MATTER WHERE YOUR SHOP IS, THERE'S A WHOLESALER CLOSE TO YOU WHO STOCKS SUNISO OIL

ALABAMA

Mobile—
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SUNISO REFRIGERATION OILS ARE DISTRIBUTED NATIONALLY BY VIRGINIA SMELTING COMPANY, WEST NORFOLK, VA.

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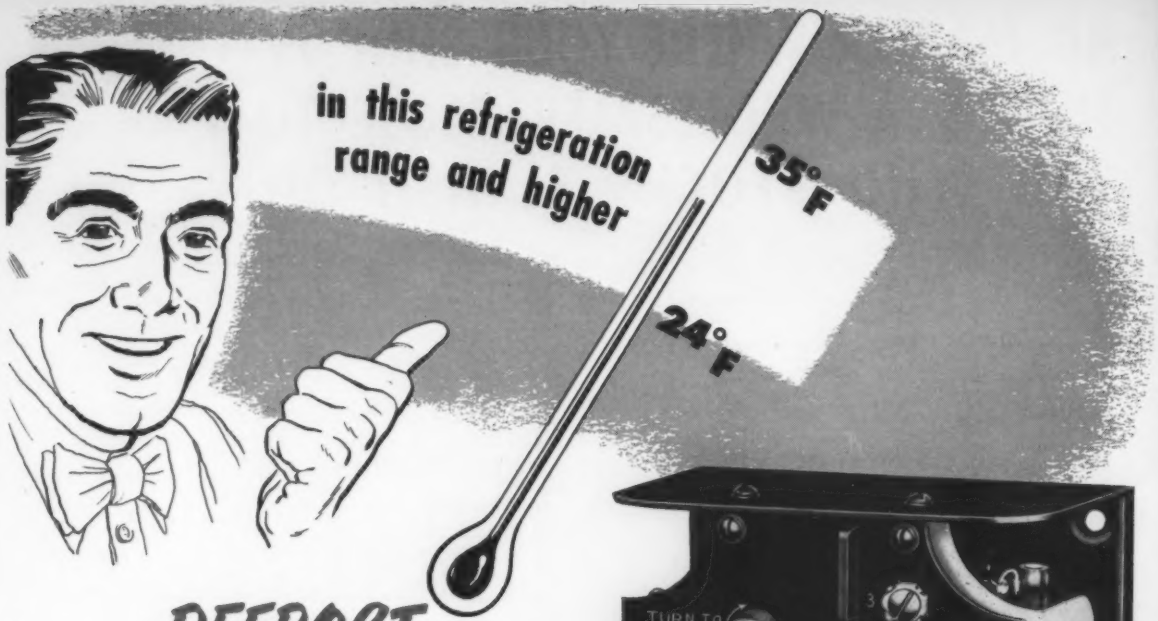

DEFROST AUTOMATICALLY with T-P*

*T-P . . . Time-Pressure defrosting . . . is the best method for defrosting coils in display cases, self-serve cases, reach-in boxes and other refrigeration equipment maintaining temperatures from 24° to 35° F. and higher. Here's why . . .

It *automatically and correctly varies* the defrost period as required . . . eliminates annoying problem of determining length of shut-down time for proper defrosting under varying load and weather conditions. T-P *avoids unnecessary* shut-down time by stopping compressor *only long enough to defrost* . . . and does it automatically!

Learn more about the PENN Series 325 Time-Pressure Defroster. It's easy to sell. Ask your wholesaler or write **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U. S. A. In Canada: Penn Controls Limited, Toronto, Ontario.

Interior (above) and exterior (right) of Type 325. Timer can be set for one to six "off periods" every 24 hours. Length of "off period" varies automatically with frost condition on the coil.

PENN

AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

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BTU's NEWS · LAWS · TRENDS

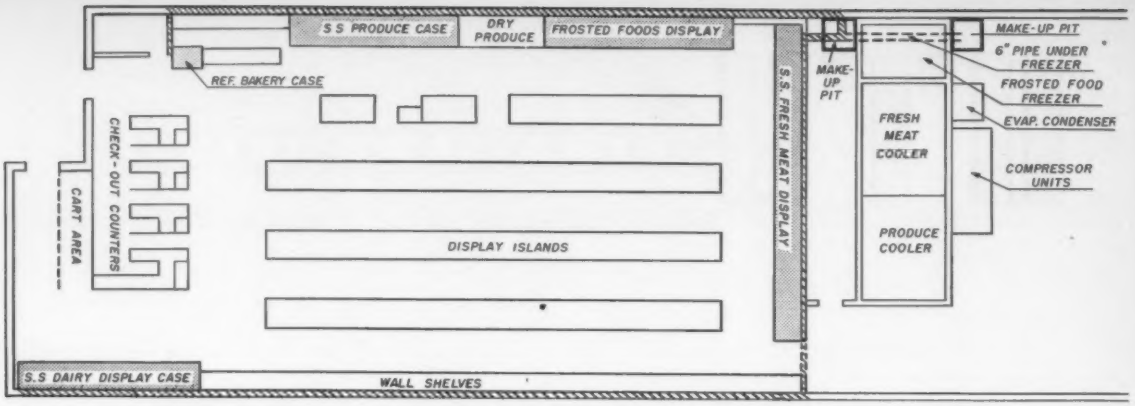
THE COPPER SUPPLY picture "will begin to improve materially during the latter half of 1952", Cornelius F. Kelley, Anaconda Copper Mining Co. chairman, predicts in his statement on the copper outlook for the coming year. Total present supply, Kelley said, is in the neighborhood of 125,000 tons per month, including an estimated 35,000 tons per month from foreign sources. Projects now under way or contemplated in the United States and abroad, he added, should make available, by 1956, a monthly supply of around 150,000 tons of copper, an increase of 26% above present levels and 45% above the first half of 1950. "While copper admittedly is in short supply today, it promises to increase in about the same capacity as expanding steel production," Kelley declared.

AN INDUSTRIAL CHILLING UNIT has been put to novel use by a Michigan aircraft and radio accessories manufacturer. To prevent "snowing" in aircraft instruments subjected to the low temperatures of high altitudes, the gases used to fill instrument cases are dehydrated by being forced through coils installed in the cooling chamber of the chiller, which gets down to –130 F. The water vapor in the gas condenses out in the form of ice crystals and fine snow, and the condensate is trapped by filters before it can enter the supply line. The gases are warmed to room temperature before being used.

AIR CONDITIONING FOR ANIMALS as well as for humans will be provided in a huge new Tennessee state office building now under construction in Nashville. A special installation has been planned for animal research areas in the building's public health section, since it is considered essential in many experiments to eliminate varying physical reactions resulting from changes in temperature and humidity. The air conditioning for these areas will maintain exact levels of 80 F and 50% relative humidity, summer and winter, to insure consistent scientific results. Centrifugal refrigerating machines will serve the major part of the office bulding, and a special 30-ton unit will handle the "animal spaces". Eleven independent units will be installed in cold rooms in the research wing to maintain a precise 2 C for storage of serums and other materials.

ACCORDING TO A STUDY reported recently by U. S. Department of Agriculture scientists, freezing seems to make beef somewhat more tender than unfrozen cuts. R. L. Hiner and O. G. Hankins of the Bureau of Animal Industry report that they studied the tenderizing effect of freezing on a variety of representative cuts from veal calves, 500-lb. steers, 900-lb. steers, three-year-old barren heifers, and 12-year-old cows. In general, they said, natural tenderness which decreases with the age of the animal was increased by freezing. Tenderness was measured by a mechanical shearing device.

FREEZING SEA WATER to make it drinkable is said to have been proved practical in work carried out in Germany recently. A series of tests was made in which sea water was frozen in different ways, and while neither that frozen in ice cans nor that produced by air blast freezing proved low enough in salt content for drinking, a third method is said to have worked out satisfactorily. It was found that if annular cells were used for the freezing and if the annular ice block was rotated as it formed, the solution remaining in the cavities was centrifuged, so that ice having only 7% of the original salt content could be obtained by freezing 50% of the salt water. By rinsing the ice with cooled water, the salt content of the ice could be lowered further. This method is said to permit production of ice from sea water having not more than 1% of the initial salt content if a yield of 25% ice is sufficient.



CAREFULLY PLANNED use of sub-floor channels for refrigerant lines (see shaded lines on diagram), make-up pits in which all lines and controls can be centralized for easy service, and evaporative coolers to lower equipment cost, decrease operating expenses, and increase usable storage space, all are factors which can help you...

MAKE YOUR INSTALLATIONS PAY OFF

DO YOU use your installation technique as a selling point? Capitol Refrigeration Co. of Albany, N.Y. does.

During his many years as a specialist in the field of food market refrigeration, Leo Bronstein, boss of this aggressive commercial refrigeration dealership, has developed a number of effective installation procedures which work out to the advantage of the market owner as well as to his own firm. Lumped together, these installation tricks present a positive selling point which Bronstein has used to swing many a close deal his way.

For instance, it is virtually a fetish with Bronstein that all refrigerant lines—no matter how long the run—be completely concealed. To accomplish this he lines up his equipment as much as possible, and then prepares a trench in which to run the lines.

This channel normally is dug about 8 inches deep and 8 inches wide. All lines are laid in it and then the trench is covered with the normal flooring in such a way as to be readily accessible in case trouble develops. Location of the breaks in the line at 20-foot intervals are clearly marked so that all joints can be located and checked immediately without lost time in hunting for them.

When laying out a new market, it is of course a simple matter to make provision for these channels. It involves considerably more trouble and expense in the remodeling of an old market, but Bronstein firmly believes that it is well worth the added cost and effort.

All of the lines from all of the fixtures running through these channels are brought into a specially dug make-up pit about 3 feet deep and 3 feet square, usually located somewhere in the rear of the store, as near as possible to the compressor location.

All valves, liquid indicators, and controls possible are located in this make-up pit, to provide one centrally located, readily accessible point of service. Each machine and line is equipped with its own individual liquid indicator to simplify charging and check-backs.

Another maintenance aid upon which Bronstein insists in all his installations is a completely detailed blueprint of the equipment and machinery layout. This blueprint is conspicuously posted right on the job, and proves a big help in speeding repairs anytime that service is required. No serviceman ever has to wonder where the lines for any piece of equipment are run, or where the controls for any part of the system are located.

Of equal importance in Capitol Refrigeration's food market installations is the use of water cooled condensing units and a multiple evaporative condenser serving all of these units.

Each piece of equipment has its own set of coils in this master evaporator. The evaporative condenser is hooked up in such a way that any time one or more of the condensing units kicks on the "evap" also kicks on, but if all units are off the evaporative condenser also remains idle. The "evap," of course, is always vented to the outside of the building.

The advantages of this kind of a set-up are many, both from the standpoint of the customer and the installer.

In the first place, Bronstein has found that he can net an extra $500 or $600 on each evaporative condenser

Continued on page 94

ALL REFRIGERANT LINES in the food market installations planned by Capitol Refrigeration Co., Albany, N.Y., dealer in commercial refrigeration equipment, are concealed in 8x8-inch channels dug beneath floor level and covered by removable flooring. Breaks in the lines every 20 feet are clearly marked to facilitate testing for leaky joints.

Try these techniques on your next food market installation

EVAPORATIVE CONDENSER at right includes a separate set of coils for each condensing unit mounted in the double tier at the left. When one or more of these units kicks on, the "evap" also starts to function, but it remains idle when none of the condensing units are operating. The "evap" is vented to the outside of the building.

MAKE-UP PIT provides a means of tying in all refrigerant lines from each of the fixtures in the market. This makes for a more orderly installation and greatly facilitates maintenance work. Installation foreman Joe Beza points to the 6-inch pipe laid under the bulk freezer to provide a conduit for the refrigerant lines.

JOHN E. SCHILLING, owner of the Schilling Chilling Co., Indianapolis, Ind., and author of this article, demonstrates just one of the . . .

14 ways a volt-ammeter can

BOOST YOUR SERVICE PROFITS

TIME was—and not so very long ago—when electrical troubles were one of the refrigeration serviceman's biggest headaches.

Many servicemen can well remember the time when most such problems were solved in one of two ways—by calling in a good electrician to diagnose the difficulty, or by going back to the shop for the company's volt-amp checker.

This instrument, aside from being bulky, was a little too costly for the average serviceman to buy on his own. Consequently, if the organization had one at all it usually was company property that was pooled for everyone's use.

That is, it was available for every serviceman's use if he wanted to invest the time to go after it. Usually he didn't. The customer's cooler was down, and the serviceman knew the customer would squawk if his call wasn't answered promptly. As a result, the serviceman often left a call with the job running but with his fingers crossed, just hoping that he had diagnosed the difficulty correctly.

Now, however, "them days are gone forever." No longer is there any excuse for a serviceman just guessing at electrical troubles, for accurate dependable volt-ammeters are now available in a form so compact that they can be carried in a pocket or slung on a belt, and at a price the average serviceman can well afford to pay.

It would be difficult to imagine any service instrument which is more flexible in its use, or which will provide the answers to so many puzzling problems. A good volt-ammeter on the job goes a long way toward speeding up

certain phases of service work. And time, as any serviceman knows, is his money.

And the beauty of this important service tool is its simplicity. It is easier to read than a pressure-temperature chart, speedier to apply than a suction gauge. Even a green apprentice can use one and quickly find the answer to any of the 14 problems itemized in the adjoining columns.

Let's analyze these 14 important functions of the volt-ammeter one by one. Keep in mind the fact that the instrument reads both amperage and voltage on a single scale. Amperage is indicated when the jaws are snapped around any conductor (either insulated or bare wire.) Jaws open by merely pressing a small lever, close when you release it. Voltage is indicated by touching the furnished lead clips to two sides of the electric line.

14 Uses Analyzed

The first job is self explanatory. With the jaws of the tool surrounding the conductor, a magnetic field around the conductor—caused from current flow through it—responds on the scale, indicating actual amperage. Accuracy is within plus or minus 3%.

Job 2 is accomplished practically as readily. After inserting the prong ends of the leads into the instrument, touch the free ends to any two sides of the line to read line voltage—or transformed voltage, for that matter. Voltage is within the same degree of accuracy as the amperage.

Fuse testing—Task No. 3—is no longer hit or miss, as with a test lamp. A voltage test on the outlet side of the fuse will show a blown fuse (no voltage reading) or a weak fuse (low voltage). To eliminate back flow errors, touch the leads to both sides of the fuse. Fuse is good with no voltage reading and blown if full voltage is registered.

A defective motor—No. 4—is quickly apprehended, too. Disconnect one side of the line (control side) from the motor and touch the voltage leads in series—line, voltmeter, motor. A motor "open" will present any voltage reading. With the same hook up, touch the motor frame with voltmeter lead instead of second motor lead. A ground will then be detected by any voltage reading. This is true because with such a hook up, there

Continued on page 75

Are You Getting the Most Out of Your Volt-amp Meter?

A good portable snap-around volt-amp meter can be one of your most important service tools. But, as with any other tool, you have to know how to use it properly in order to derive the fullest benefit from it.

This handy piece of equipment will give you the answer in a few seconds to many of the electrical problems which used to take hours to solve. Here are some of the more important things it will do for you:

1. Tell you, at the press of a lever, just what current flow is in any conductor, from zero to 250 amps—and with no electric connections.
2. Safely tell you in a few seconds the precise voltage on a line, from zero to 600 volts.
3. Read to you immediately which fuses are out and which fuses are weak.
4. Detect motor grounds and motor opens right on the job.
5. Let you test a sealed unit in seconds, on the job, with one instrument.
6. Lend itself immediately as a test lamp.
7. Indicate exactly what fusetron or heater element to use to provide proper motor protection.
8. Become an excellent continuity checker.
9. Spot tight belts, hot bearings, or other motor overloads.
10. Set overload relays.
11. Actually indicate the opening and closing of expansion valves in operation.
12. Assist you in providing maximum air delivery from blowers.
13. Tell you, on "won't run" calls, just which switches are open and which are closed.
14. Supervise your decisions on when you can or when you can't add another compressor motor to a circuit.

Completely new
for fifty-two!
New improved

MUELLER BRASS CO.

globe type
line valve

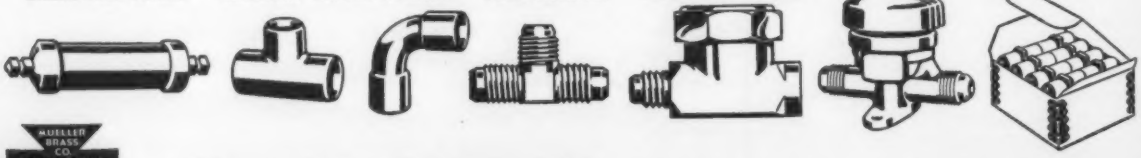
Incorporating many new engineering refinements, these highly polished globe-type line valves for 1952 are designed and built to withstand the most severe operating conditions. In these new valves, an especially designed "O" ring chamber between body and collar provides positive seal regardless of the range of temperatures and pressures. As the union collar is tightened, the ring is compressed until its shape in cross-section is triangular, which utilizes both the "O" ring and gasket principle to provide an effective and permanent seal. The Nylon stem disc is tough, resilient and unsurpassed for refrigeration valve seating. Simplified construction assures easier, much quicker installation.

Write for catalog R-152 describing complete line of STREAMLINE refrigeration products.

75

STREAMLINE refrigeration products are individual and multiple packaged for complete protection.

DRIERS AND FILTERS | WROUGHT COPPER FITTINGS | FLARE FITTINGS | LIQUID INDICATORS | VALVES



MUELLER BRASS CO. STREAMLINE PRODUCTS

MUELLER BRASS CO. PORT HURON 12, MICHIGAN

Circle No. 30 on Reader Service Card for more information

ACCOUNTS RECEIVABLE

Date	Amount collected this date	Total collected this month to date	Balance due	% collected to date
1	362.12	362.12	31,536.04	.0115
2	918.07	1,280.19	30,255.85	.0406
3	152.04	1,432.23	30,103.81	.0454
5	1,282.66	2,714.89	38,821.15	.0861
6	1,713.08	4,428.97	27,107.07	.1404

If accounts receivable are causing you headaches, try these simple bookkeeping procedures which can help you . . .

STOP LOSING YOUR SHIRT

ACCOUNTS receivable have proved a stumbling block for many a refrigeration firm. Through improper handling of this extremely important phase of business activity, many a dealer or contractor has virtually signed the death warrant of his own business.

All too many refrigeration men handle their accounts receivable on an "out of sight, out of mind" basis, and let them get completely out of hand simply because they don't keep a close month-to-month check on these accounts.

As a result, the greater percentage of these heavy accounts receivable frequently end up as a total loss, even after the dealer or contractor has struggled through a tangled and seemingly endless morass of lawsuits, liens, etc. In many such cases, lack of control of such unbalanced credits has left little to salvage.

If you've had your share of headaches in this respect, consider the simple but effective system employed by one firm which has managed through years of experience to devise a series of controls which now keep its uncollectable accounts to less than $100 per year on sales of more than a quarter of a million dollars annually.

The owner of this firm calculates that when his company makes a $1.00 sale—and fails to collect for it—the organization then has to sell more than $20 worth of merchandise *and collect for all of it* before getting back to where it was prior to making that original one dollar sale.

The first step in paring down losses on accounts receivable comes under the heading of *prevention*. A bad account, this dealer believes, usually can be detected before the prospect buys a single item.

"In opening an account," he points out, "we first have the purchaser sign and complete an application form. We then secure from the local retail credit association the necessary information to complete an inquiry ticket.

"If our study of the two completed forms indicates the ability and willingness of the applicant to meet his obligations, the account is opened. Strict adherence to the terms of payment is demanded. Except in extreme circumstances, any deviation from these terms results in closing the account.

"The mechanics of controlling your accounts receivable are simple. And if you conscientiously stick to it, this system really works.

"By the third or fourth day of each month," this dealer explains, "we have our bookkeeper prepare an alphabetical list of all accounts receivable on a sheet headed 'Accounts

Continued on page 60

about PEOPLE

Several changes in its executive staff have been made by Tyler Fixture Corp., Niles, Mich., since its acquisition of Wilson Refrigeration, Inc., Smyrna, Del. **Carl Eliason,**

Carl Eliason

Paul Jackel

Ray Greene

Hugh Cooper

formerly vice president in charge of national accounts, is now vice president of Wilson in charge of all operations, including sales, with headquarters in Smyrna. **Paul Jackel,** formerly general sales manager of Tyler, is now vice president in charge of national accounts for Tyler. **Ray Greene,** formerly assistant to the general sales manager, has been appointed sales manager; and **Hugh Cooper,** supervisor of agency sales since 1948, is now assistant sales manager.

●

O. J. Dail, assistant vice president in charge of Servel's electric refrigeration division, has announced the promotion of **John F. Zubrod** to assistant sales manager of the division. Zubrod, formerly assistant to the general manager of the electric refrigeration division, has been with Servel since his graduation from Purdue University in 1933. He started as an application engineer, and in 1940 became manager of the application engineering department.

●

A. F. Ward has been appointed sales manager of the Gas-O-Matic Division of Eureka Williams Corp., Bloomington, Ill., where he will organize a new division for selling a complete line of residential gas-fired heating equipment to be introduced by Eureka Williams. Ward comes to his new position from Airtemp Division of Chrysler Corp., where he has been since 1940. With Airtemp, Ward was successively St. Louis district manager, director of heating sales, director of packaged air conditioning sales, war contract administrator and director of sales training.

●

Appointment of **John M. Bickel** as manager of the Dealer Sales Division was announced by Cloud Wampler, president of Carrier Corp. Bickel has been assistant sales manager of the division with headquarters in New York City. Wampler also announced the appointments of **Russell H. Gray** of Carrier's Atlanta sales office as executive assistant to the executive vice president, and of **Ralph Ebbert** as acting director of public relations. Ebbert is director of the Personnel Services Department Bickel, Gray and Ebbert succeed the three Carrier executives who were killed in the Elizabeth, N. J., airplane crash. **John A. Gazelle** and **George T. Long** have been named sales managers, Dealer Sales Division, with headquarters in Chicago and Atlanta, respectively. In Atlanta, Gray is being succeeded by **Marion H. Darby,** formerly a senior sales engineer in Carrier's office there.

J. M. Bickel

Appointment of **Everett N. Guild** as an assistant sales manager of Frick Co., with headquarters in Frick's main office and factory at Waynesboro, Pa., has been announced by W. H. Aubrey, vice president and sales manager. Guild has been in the industry for 25 years, originally as a commercial sales engineer for Copeland and later with Norge, where he eventually became director of research. Since 1949 he has been general sales manager of Victor Products Corp. His principal activities with Frick will involve sales of such equipment as unit air conditioners, packaged ice makers, etc., through factors, dealers and contractors.

●

R. J. Resch, president of McQuay Inc., Minneapolis, has announced the appointment of **Donald F. Coones** as assistant treasurer, **Byron E. James,** vice president in charge of engineering and research, and **Donald P. Wilson,** vice president in charge of manufacturing. Coones joined McQuay nine years ago as comptroller. In 1949 he was appointed assistant secretary, which title he will continue to hold. James came to McQuay in 1949 and since that time has directed the engineering department. He was formerly general manager of the Morrison, Ill., plant of the Liquid Carbonic Corp. Wilson has been with McQuay for 15 years with assignments in production, tool design, plant layout, material control, and labor relations fields.

D. P. Wilson

B. E. James

D. F. Coones

. . . and for the air conditioning, we'll insist on Honeywell!

You'd think cartoonist Tobey's famous couple would be discussing something else in a setting like this!

However, the *one* thing the above gentleman wants is *efficient* air conditioning operation! And he knows the best way to get it is to insist on famous Honeywell controls.

The plain fact is – there's no better guarantee of dependable, trouble-free operation than the Honeywell name on automatic controls for air conditioning and refrigeration.

So make *your* first choice Honeywell Controls – the first choice of architects, builders and consumers. For full information – or an 8½" x 9" personalized reproduction of this Tobey cartoon – write today to Honeywell, Dept. CR-3-40, Minneapolis 8, Minnesota. In Canada, Toronto 17, Ontario.

MINNEAPOLIS **Honeywell**

First in Controls

Circle No. 31 on Reader Service Card for more information

H. H. Rosenheim has been appointed sales manager of International Register Co., Chicago. He joined the company in 1938 as sales engineer and was made assistant sales manager in 1949. A graduate of Northwestern University, Rosenheim served as a major with the U. S. Air Force and from 1946 to 1947 was civilian director of the Industrial Mobilization Planning Division of the Air Force.

●

Carroll A. Ray has been named sales promotion manager of Schaefer, Inc., Minneapolis. He comes to Schaefer from the Minneapolis office of Erwin, Wasey & Co.

Harold A. McDermott of Rensselaer, N. Y., has been appointed manufacturers representative for Madden Brass Products Co., Chicago, in the entire upper New York state area. Madden makes an extensive line of products for the refrigeration, LP gas and oil burner fields.

●

Myron D. Miller has been appointed full-time secretary and safety code consultant of the Refrigeration Industry Safety Advisory Committee (RISAC) with offices at NEMA headquarters, 155 E. 44th St., New York City. He succeeds the late Cyrus W. Miller. For the last three years, Miller was a division manager with the Commerce and Industry Association of New York, Inc. His activities included organizing and staffing the air conditioning and refrigeration panel that has been working since December, 1950, on drafting a modern refrigeration code for New York City. He also organized a special industry committee that has been working on New York City legislative problems affecting the industry, such as contractor licensing, licensing of operators of refrigeration units of specific capacities, and regulation of installation and maintenance of refrigerating equipment.

●

Harry Quinn has resigned as director of sales for Refrigeration Engineering, Inc., Los Angeles, effective Jan. 1, to enter other types of sales work in the commercial refrigeration

Continued on page 93

Close Humidity Control: a "Must" for Medicines

RIGID humidity control is essential in work areas where capsules are filled with hygroscopic powders. (The word "hygroscopic"refers to the tendency to absorb moisture from the air.)

In plants where such capsules are produced, therefore, it is imperative to keep the powder dry until it has been put in the capsules and until the filled capsules have been placed in bottles. Humidity control is equally necessary for the capsules themselves, for these delicate gelatine containers would get tacky if exposed to a damp atmosphere.

Atmospheric moisture control during the manufacturing process assures a uniform product which will remain uniform in the bottle for an indefinite period of time.

In the capsule filling department of Eli Lilly & Co., Indianapolis, lithium chloride dehumidifiers are used to maintain the necessary humidity conditions. While in winter the atmosphere is dry enough not to require mechanical air drying, the company's policy to maintain year-around manufacturing schedules makes it desirable to have uniform atmospheric conditions throughout the year.

The Eli Lilly capsule filling department consists of a series of three rooms in which filling, inspection and bottling are performed. Each of these rooms is maintained at 78 F and 25% relative humidity.

A dehumidifier is located centrally on the floor above each roof, a layout feature which keep the runs of ducting to a minimum.

The wet bulb temperature in each room varies the dehumidifying effect as needed to maintain the relative humidity. The dry bulb temperature actuates the cooling coils or heating coils in order to maintain the proper temperature.

A breakdown of the operating cycle is as follows: the contact coil in each unit allows the sprayed lithium chloride dehumidifying solution to mix with the incoming air, producing very fine droplets; the lithium chloride increases in volume as it picks up moisture; a regenerator located adjacent to each main unit periodically boils the moisture out of the lithium chloride to maintain the desired level of the solution in the bottom of the unit.

The recirculated and incoming air is passed through an electrostatic filter as a means of dust control. The volume of recirculated air handled by the dehumidifiers is from 50 to 90%. The capacity of the dehumidifying units varies from 17,000 to 25,000 cfm, to give the proper conditioning for the various sizes of rooms served.

The contactor coils maintain the proper lithium chloride solution temperature by thermostatically controlled chilled water valves varying the amount of the 42-degree water passing through the coils. Chilled water is circulated throughout the plant from a bank of centrifugal compressors.

While some of the chilled water is used for process cooling, the larger part of it serves for air conditioning purposes. The capacity range of the centrifugal compressors is from 150 to 1200 tons.

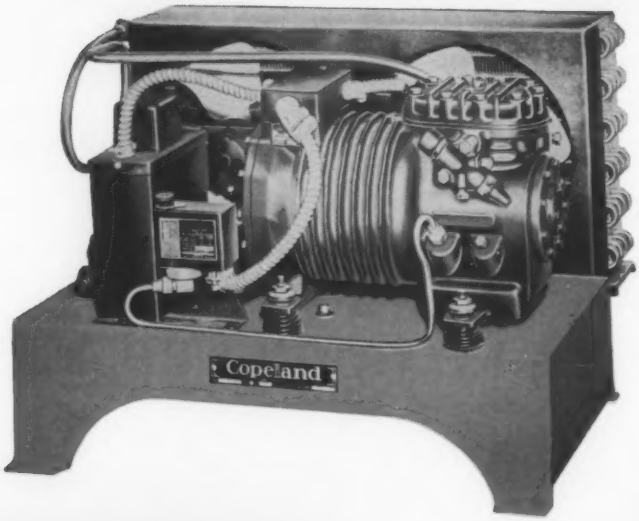
The air is delivered to the room through a branch duct system and ceiling type diffusers. The capacity of the circular diffusers ranges from 500 to 1500 cfm.

Thus, regardless of summertime humidity, Eli Lilly & Co.'s capsule filling department is equipped to manufacture a uniform product 12 months in the year.

Copeland

DEPENDABLE *Electric* REFRIGERATION

the line for Greater Sales!



COPELAMETIC

THE *ACCESSIBLE* HERMETIC

AND

COPELAND

OPEN-TYPE UNITS

With open-type units and Copelametics in sizes of 1/6 H.P. through 7-1/2 H.P. Copeland broadens the range of your prospects . . . shortens the distance to the name on the dotted line.

National advertising to your market helps you cash in on Copeland's reputation. Copeland's recognized quality insures recommendations and repeat sales.

Get behind the product that's behind you all the way . . . the product that gives you a size for every refrigeration and air-conditioning need.

Display and sell the new, complete Copeland line.

COPELAND REFRIGERATION CORPORATION · SIDNEY, OHIO

Manufacturers of

REFRIGERATION UNITS (OPEN-TYPE AND COPELAMETIC), WATER COOLERS, REFRIGERATORS

Circle No. 32 on Reader Service Card for more information

AIR CONDITIONING of this entire block of office buildings in Alton, Ill., with the 100-year-old Elfgen Bldg. in the foreground and the 50-year-old Alton Banking & Trust Bldg. at the far end of the block, provides further evidence of the fact that . . .

OLD BUILDINGS MAKE GOOD PROSPECTS

PECULIAR CONSTRUCTION characteristics of the Elfgen Bldg. made it necessary to introduce pre-heated or pre-cooled fresh air through stacks under pressure into the hallways, where it is picked up by the units.

THE original tenants of a certain building block in Alton, Ill., wouldn't believe their senses if they could see—and feel—the conditions under which their current successors are doing business.

For the 100-year-old Elfgen Bldg. and the 50-year-old Alton Banking & Trust Co. Bldg. at the other end of the block have provided their present tenants with the last word in modern comfort by installing complete year-around air conditioning facilities.

As has been the case in many other installations in existing structures, a system involving the use of individual room units operating from central hot and cold water sources seemed to provide the most advantageous answer. Equipment in both buildings was installed by Accurate Refrigeration Co. of East Alton.

First in the series of installations was made in the original Elfgen Bldg., which was erected in 1850 at the right-angle corner of the wedge-shaped block. The building had previously been heated by hot water radiation from an oil-fired boiler, sized to provide for both the existing building and a contemplated addition.

Thirty-two "Modu-aire" units manufactured by United States Air Conditioning Corp. were installed, operating from a Bell & Gossett chiller and a Schnacke 25-hp compressor unit with a "Thermatrol" capacity control. This equipment located in the basement, provided for summer cooling. The room units were connected to the hot water supply for winter heating. A U.S. Air Co. 25-ton evaporative condenser was installed on the roof.

Shortly after the original installa-

tion was made, the building addition was completed and another 45 Moduaire units were installed, together with a 40-hp compressor, a second chiller and a 40-ton evaporative condenser to handle the added load.

The two systems have been interconnected so that in mild weather the 40-hp unit carries the entire building load. Then, when load conditions require it, the second compressor automatically cuts in.

On the cooling cycle, 45-degree water is supplied to the room units and returned to the chiller at 52 F. Compressor operation is controlled by the water temperature leaving the chiller, with a safety suction temperature cutoff.

Changeover Controls

On the heating cycle, hot water is circulated through the units and the water temperature is governed by a Minneapolis-Honeywell outside temperature controller.

To provide individual room control, unit blowers are thermostatically operated, while water flows through the coils continuously. Minneapolis-Honeywell TA-42-B thermostats, mounted on Q-152A sub-bases, handle the summer-winter changeover on the same controller.

Peculiar construction characteristics of the Elfgen Bldg., including the fact that the building occupies a sharply sloping plot putting the first and second floors below ground level on one side, made it virtually impossible to introduce fresh air through the room units directly.

Fresh Air Problem

This was overcome by the installation of stacks running from the roof, introducing pre-heated or pre-cooled fresh air under pressure into the hall corridors to be picked up by the individual units. A portion of the recirculated air is passed through a bank of activated carbon by a central fan unit.

Eugene Elfgen, the building's owner, has found that his fuel consumption has been reduced by one-third since the new system went into operation.

The complete all-year air conditioning system installed in the adjacent wedge-shaped Alton Banking & Trust Company Bldg., was part of a

Continued on page 75

The Modern Touch

PROBLEM:

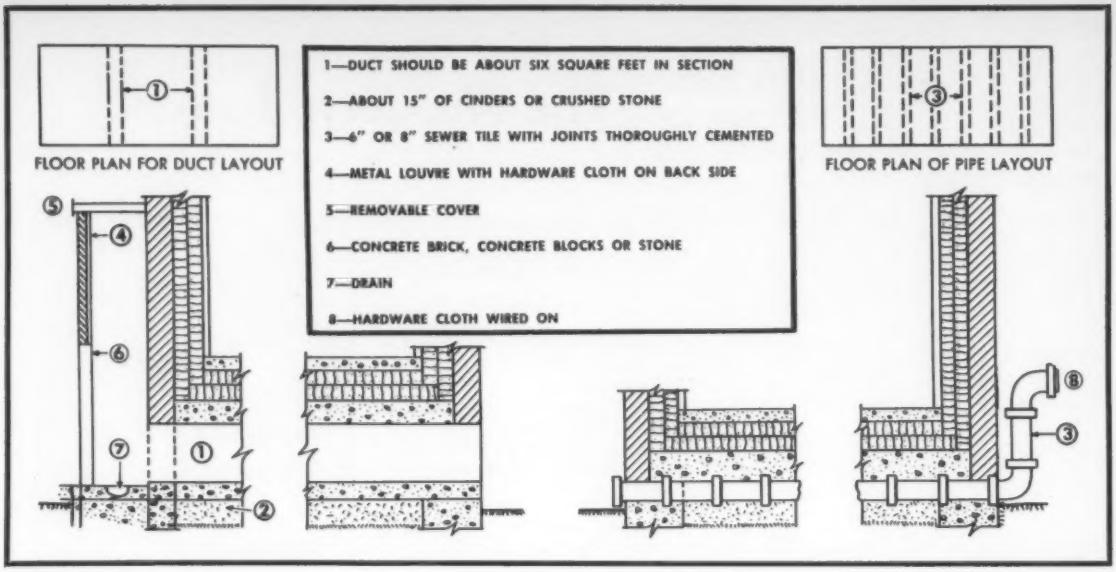
To air condition the dining rooms of this historic hostelry without making extensive structural alterations which would jeopardize the hotel's traditional early American atmosphere. The 135-year-old Golden Lamb at Lebanon, is the oldest inn still operating as a hotel in Ohio, and has been patronized by such historic figures as Charles Dickens, John Quincy Adams, and Henry Clay. It still capitalizes importantly on its "antique" atmosphere.

SOLUTION:

To keep the visible presence of modern air conditioning equipment from marring the colonial decor of the main dining room, this 5-ton Frigidaire packaged unit was installed in a storage room at the rear, without the necessity of building alterations. Two short ducts carry conditioned air to suitably located wall outlets. A similar unit installed in an enclosed area adjacent to the kitchen supplies conditioned air to a private dining room.

RESULT:

Hotel patrons now dine in conditioned comfort in a room which has lost none of its traditional appearance. Only condescension to "the modern touch" is the two inconspicuous outlet grilles located on the rear wall near the ceiling.

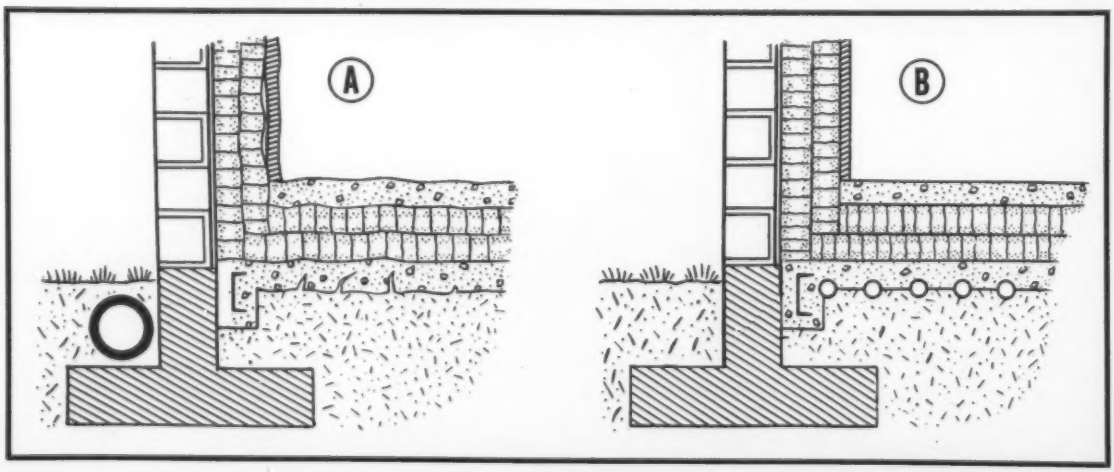

FLOOR PLAN FOR DUCT LAYOUT
1—DUCT SHOULD BE ABOUT SIX SQUARE FEET IN SECTION
2—ABOUT 15" OF CINDERS OR CRUSHED STONE
3—6" OR 8" SEWER TILE WITH JOINTS THOROUGHLY CEMENTED
4—METAL LOUVRE WITH HARDWARE CLOTH ON BACK SIDE
5—REMOVABLE COVER
6—CONCRETE BRICK, CONCRETE BLOCKS OR STONE
7—DRAIN
8—HARDWARE CLOTH WIRED ON
FLOOR PLAN OF PIPE LAYOUT

PREVENTION: Where sub-zero rooms must be erected on or below grade level, a system of ventilation such as that diagrammed above should be provided to insure against the danger of frost heavage.

How to lick the problem of

FROST HEAVAGE IN FREEZERS

CURE: (A) Steam, hot water, or oil pipes are sometimes installed in a trench around the perimeter of a freezer room where heavage has occurred. The resulting heat penetrates the foundation walls, slowly thawing the ground and allowing the floor construction to recede. (B) A system of wrought iron pipes, similar in appearance to radiant heating, then can be installed on a suitable foundation. Circulating steam, hot water, or warm oil through these pipes will offer insurance against future frost heavage.



◂ *a page for the contractor's notebook*

FLOOR construction for freezer rooms that are built directly on or below grade level must receive special engineering attention to prevent frost heavage. This is particularly true of large rooms.

Unless there is a continuous supply of heat, whether it be provided by warm air, water, or possibly even oil, beneath the freezer floor, experience has shown that ice forming in the earth under the floor may eventually buckle the concrete slab.

Over a period of time the low temperature of the room will draw heat from the ground faster than nature can replace it, resulting in ground freezing under the floor of the room. The accumulation of ice and the force it generates will eventually buckle the freezer floor and cause a breakdown in operations.

No amount of insulation can prevent the flow of heat from the ground into the freezer room. For insulation, no matter how effective, does not prevent the flow of heat, it serves only to retard its rate.

To help prevent this trouble, ways have been devised of ventilating the subfloor of a freezer on grade *(see "Prevention" diagram on facing page)*. These methods, however, can be effectively employed only in the erection of a new freezer. They are of little value to the owner of an existing freezer damaged by frost heavage. His problem is to repair this damage properly with the least amount of expense.

There is no such thing as an inexpensive way to deal adequately with frost heavage once it occurs. All of the following methods are costly, either in dollars spent on a remedy or in lost dollars due to a period of inactivity, and often in both.

One possible solution is to remove all stored goods and produce from the freezer areas and take the room completely out of service by shutting off the refrigeration. Then the entire finished wearing floor, floor insulation and subfloor must be removed, together with about two feet of the frozen subsoil.

The frost in the ground must be permitted to thaw. When all evidence of frost has disappeared, a coarse aggregate fill is placed over the subsoil. An adequate ventilation system and a new concrete subfloor are then installed. Insulation in proper thickness to hold the desired temperature, plus a finished concrete wearing floor, completes the new installation.

Sometimes it is more practical to work around the exterior of the building *(see "Cure" diagram A on facing page)*. Around the perimeter of the building a trench must first be excavated. Steam, hot water, or warm oil pipes are then installed at the bottom of the footings on the outside. The resulting heat will then help to penetrate the foundation walls and footings and thaw out the ground which may have caused the lifting of the building itself.

Around the interior free standing columns or piers, well points may be driven at each location and low pressure steam forced through them. This

Continued on page 92

It *did* happen here . . . and here's what was done

To remedy frost heavage which resulted after this ground level cooler was converted to a freezer, floor was removed and steam used to return building slab to proper position. Sub-floor ventilation in the form of wrought iron pipes on a crushed cinder base then was installed, covered by adequate insulation and a concrete wearing floor.

When relieving frost accumulation under a freezer room floor, well points may be driven around interior free standing columns or piers. Low pressure steam then may be applied to gradually melt the ice formation under the floor.

Point THIS out to your customers!

Better Self-Service
...signed, sealed and delivered!
To get good turn over on your frozen foods, you have to give your customers a clean, clear view of the merchandise. That's pretty basic.
And that's exactly what you (and your customers) get . . . signed, sealed and delivered . . . when you buy a refrigerated case glazed with Thermopane*, insulating glass. Thermopane's famous, exclusive Bondermetic Seal* is what gives it to you.
This metal seal is welded right to the glass to keep moisture out of the bone-dry, insulating air between the panes. Air that stays dry keeps the inside surfaces of the glass free of film and fog. That Bondermetic Seal is proudly signed with the Thermopane name. Look for it next time you buy a refrigerated case.
Libbey-Owens-Ford Glass Company, 3232 Nicholas Building, Toledo 3, Ohio.
ASPARAGUS SPEARS
ALL GREEN
GUARANTEED SATISFACTORY OR MONEY BACK
Thermopane
FOR BETTER VISION SPECIFY THERMOPANE MADE WITH POLISHED PLATE GLASS

THEY'VE SEEN THIS ADVERTISEMENT

As a Full Page in:

Chain Store Age	March
Quick Frozen Foods	March
National Grocers Bulletin	March
Food Topics	March 17
Super Market Merchandising	April

As a Two-Page Spread in:

Meat Merchandising	April
Progressive Grocer	April

Most of your customers have seen the advertisement above. Prove to them that your refrigerated cases are among the best by pointing out the *Thermopane** name on the metal-to-glass seal.

And show them reprints of *Thermopane* insulating glass ads like the one shown here, in case any of them missed seeing it in their magazines. We'll be happy to send you some. *®

WRITE LIBBEY-OWENS-FORD GLASS COMPANY, 2932 NICHOLAS BUILDING, TOLEDO 3, OHIO.

COMMERCIAL Refrigerator SALES NEWS

Selling Takes No Holiday

By Loring T. Hammond

President, Moe Brothers Milwaukee Co.

I FEEL that there are three pertinent factors which come into selling commercial refrigeration:

First, your men should know about the product. This information can be given them by a trip to the factory making the products. These factory trips are very beneficial to your salesmen from a standpoint of interest and enthusiasm and the procuring of first-hand knowledge.

Secondly, your men must know their territory or market. Present-day changes in the materials available as well as present-day changes in buying habits require that all salesmen intensify their efforts in trying to get their share of available business. Figures show that for every one department store in the United States there are 3.3 branches that have their market in the urban areas, so that a constant study of present accounts regarding the possibility of their expanding is of the utmost importance.

Salesmen should be provided with material means of learning where new stores, bakery shops, supermarkets, et cetera, are being built. This information can be obtained from Dodge Reports or any other well-known building reports. This service provides a daily list of new buildings which would require commercial refrigeration. This will provide the salesmen with a method of selling his territory intensively, and also give him a feeling of doing a complete job and getting his share of the available business.

Salesmen should read carefully the newspapers of the city they are in for notices of new buildings, improvements, et cetera. Salesmen should make purchases in stores to see if new or modern commercial refrigeration is needed.

Third, it is recommended that every sales manager try to assist his men in developing a "sales personality". It is important that every sales manager get out with his men and actually show them that he can sell, rather than just telling them how to do it. It is recommended that every salesman try to become a "professional salesman". A professional salesman makes it a habit to do what unsuccessful salesmen try to avoid doing.

Effort should be made to sell the effect your product will bring about and not just the product, thus, making it easy to complete the sale.

Selling in '52 will keep everyone busy and because of the changing market we will all have to study in advance of making each call so that each call will be a profitable one. In 1952 selling will take no holiday.

Excerpts from an address before the fifth annual convention of National Commercial Refrigerator Sales Association.

EASTERN REFRIGERATOR MFRS. ELECT SCHWARTZ

At the annual meeting of the Eastern Refrigerator Manufacturers Association the following officers and directors were elected for 1952:

Milton Schwartz, president; Charles Raffa, vice president; Julius Anolick, secretary-treasurer. Directors include Bernard Clark, Joseph Colonese, John Poth, Irving Rubenfeld and Abe Schreckinger. Barney Berch and Albert Davis were named to the advisory board.

BUY FROM YOUR REFRIGERATION WHOLESALER

HUMPHREYS FIRM MOVES

H. E. Humphreys Co., Inc., has moved from its former location at 57 South Main St., Concord, N. H., to a new and larger headquarters at 180-182 North Main St. The company merchandises Tyler commercial refrigerators and other refrigeration and air conditioning equipment.

NAMED SWEDEN SERVICER

Refrigeration Service, Ridgway, Pa., has recently been authorized to service the Sweden Freezer line along with their other lines of commercial refrigeration and air conditioning equipment. The company is owned and operated by P. G. Eckborg.

OPENS FIXTURES FIRM IN ST. PETERSBURG, FLA.

The Friendly City Fixture Co., a new supply house for hotels, restaurants and markets, has been opened at 210 13th St., North, St. Petersburg, Fla., by J. B. Willis, who has had 13 years' experience in the meat packing business in Florida. The firm will handle a complete line of meat cases, walk-in boxes, scales, slicers, grinders and other meat handling equipment.

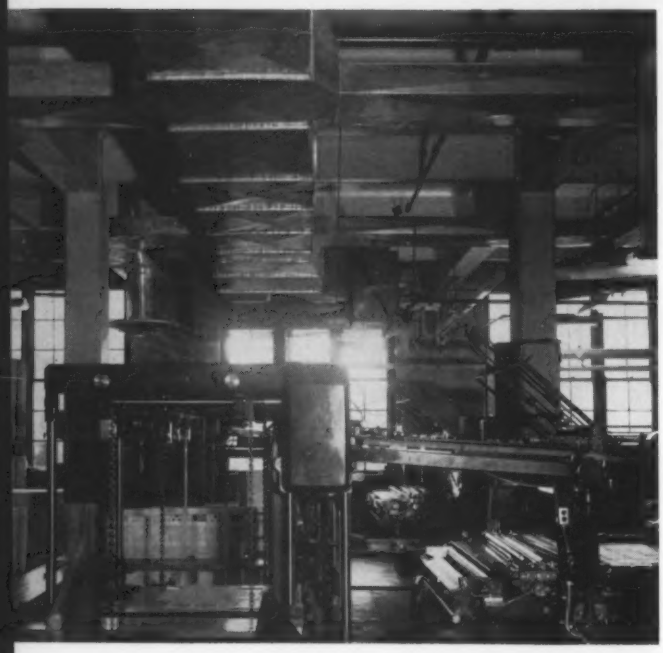
CHANGES IN KELVINATOR ZONE SALES ASSIGNMENTS

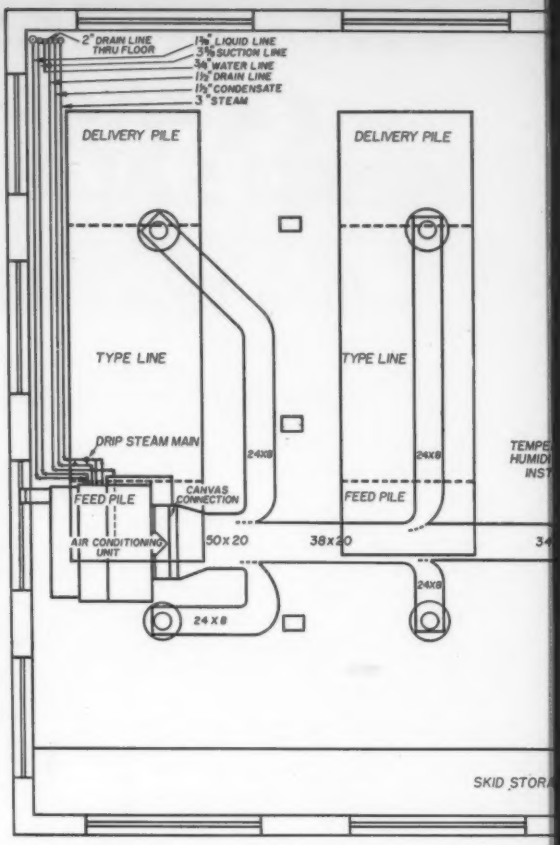
Several reassignments in the Kelvinator sales organization have been announced recently by C. T. Lawson, vice president in charge of Kelvinator sales.

J. B. Johnson, Cincinnati zone manager for the past five years, has been transferred to headquarters to the newly created position of sales manager of special products. E. S. Kerr, New Orleans zone manager, succeeds Johnson at Cincinnati. B. C. McCoy, Jacksonville branch manager, has been shifted to New Orleans, and J. V. Donohue, Jr., a member of the factory regional staff, has been named Jacksonville branch manager.

D. G. Keller, manager of the company's Kansas City, Mo., zone office, has been named manager of the Minneapolis zone office; and A. S. Lawrence, Minneapolis zone manager, has replaced Keller at Kansas City.

OVERALL VIEW of the American Book Co. air conditioning installation, showing location of ceiling type air conditioner and arrangement of ductwork in relation to the color presses. Ceiling type outlets were used to obtain a better aspirating effect and to lessen the possibility of primary air coming in contact with the paper.





Ability to obtain with direct expansi perature and humidity necessary for guishes this air conditioning installa

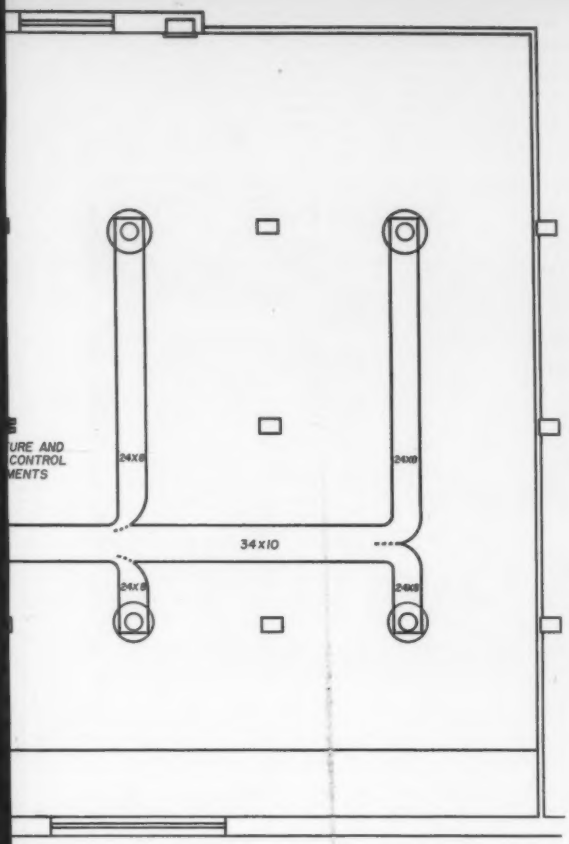
ONE FOR T

AN INTERESTING example of how direct expansion equipment, properly balanced and with sufficient flexibility, can achieve as close a control of temperature and humidity as would ordinarily be expected only with a chilled water system, is provided by the air conditioning installation in the color printing department of the American Book Co., Cincinnati.

American Book Co. is one of the nation's largest printers of textbooks—history books, geographies and similar books for use in schools—most of them calling for four-color printing which requires extremely accurate registry to insure quality work.

In color printing, close control of temperature and moisture conditions is necessary to produce finished work of constant high quality. The same sheets are run through the press several times in four-color printing work, and unless temperature and moisture conditions are closely similar at all times, wastage of paper is high because colors do not register properly on the different runs.

This wastage gets to be pretty important, money-wise, because of the high-quality (and higher cost) papers used in textbook printing. There is also another factor that increases printing costs when temperature and humidity are not controlled—presses have to be stopped periodically and the registry readjusted as conditions vary. So, in color printing, it is both a quality and an economy problem. Also, without temperature and humidity control, it is virtually impossible to do any printing



AIR CONDITIONING UNIT is suspended from the ceiling of the press room for maximum economy in ducting the air within the conditioned space. Visible at left of photo is one of the ceiling type outlets which was dropped several inches below the level of others in the room to assure distribution of properly tempered air in this location.

n equipment the close control of tem-successful color printing work distin-on, which is really . . .

THE BOOKS

on certain days, especially in the summer, when humidity conditions are bad. Paper is hygroscopic—that is, it is very sensitive to moisture—and tends to expand or contract with varying moisture conditions within the pressroom area. Even the conditions at which the paper is stored prior to printing enter into the results that can be expected when it is fed through the press.

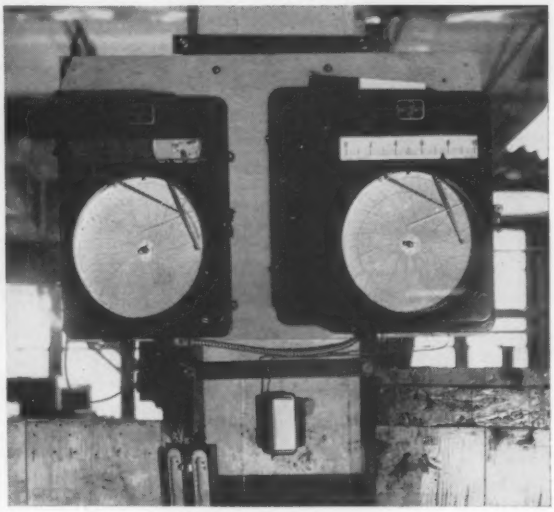
The air conditioning system used by the American Book Co. was designed and sold by Frank B. Lienhart, manager of the air conditioning and refrigeration department of Henry Niemes, Inc., Worthington distributor. All installation work on the job was supervised by Robert Long, service manager and job superintendent of the Niemes company. Equipment consists of a 4HF6 Freon-12 condensing unit, of 40 hp capacity; an ECZ-401 evaporative condenser, and an AHY-501 air conditioning unit, with heating coil.

As previously mentioned, the outstanding feature of the American Book job is the use of direct expansion equipment, properly balanced and sufficiently flexible to allow the close control of temperature and humidity which is necessary to produce finished work of constant, unvarying quality. The direct expansion system was installed at a cost of 25 to 30% less than had been estimated for a chilled water system.

Size of the conditioned room is 80 x 60 x 15 feet high, and the air conditioning system is designed to maintain 77 F dry bulb, plus or minus 1½ F, and 45% relative

COMPRESSOR and evaporative condenser located in a corner of the second floor above the room being conditioned are being inspected here by Robert Long, service manager of Henry Niemes, Inc., John Storch, engineer for American Book Co., and Frank B. Lienhart, manager of the air conditioning and refrigeration department of Niemes. Lienhart designed the system and Long was in charge of installation work on the job.

AUTOMATIC CONTROL system controls cooling, heating, humidification and dehumidification by means of two sensing instruments that function as master control points and record, as well as control, temperature and humidity conditions. One instrument is used for sensible temperature control, the other for humidity control.



humidity, plus or minus 3½%, when the outside condition is between 0 and 95 F dry bulb and 0 and 78 F wet bulb temperature.

Compressor and evaporative condenser are located in a corner of the second floor, above the room being conditioned. The evaporative condenser draws air in from the north side of the building, and discharges it to the east, to prevent short-cycling of the humid air.

The horizontal type air conditioning unit serving the press room is suspended from the ceiling of the press room itself. This location of the unit was chosen because it permitted economy in ducting the air within the conditioned space.

Ceiling type outlets are used to obtain a better aspirating effect of the air and lessen the possibility of any primary air coming in contact with the paper. This presented a special problem, since one of the outlets was located almost directly adjacent to the air conditioning unit, and was solved by dropping this particular outlet several inches below the level of the unit and the other outlets in the room. Measurements were made of the height of the feed paper pile, the type level, and the delivery pile and the problem presented to the factory before final installation.

Condensing Unit Has Four-Step Control

The condensing unit is equipped with a four-step control, allowing it to operate at ⅓, ½, ⅔ or full capacity, depending on the requirements. The compressor if equipped with high and low pressure controls, and oil failure switch, this latter because the compressor and receiver are located above the level of the cooling coil.

Refrigerant piping was designed to insure return of oil to the compressor crankcase and to prevent oil logging in the cooling coil. The suction line was designed to provide two separate risers, one a small pipe and the other a large pipe. The small riser was sized to maintain sufficient velocity to carry heavy particles of oil when the machine was operating at partial capacity. The large riser was provided with an oil trap in the floor below, and was sized to handle the remaining suction gas at sufficient velocity to carry the oil back to the refrigeration machine.

How Oil Logging Is Prevented

When the machine is unloaded at ⅓ capacity, the free oil is trapped in a loop at the base of the large suction riser. After operating under this condition for a certain length of time a sufficient quantity of oil accumulates to provide a liquid seal in the large riser. The suction gas is then handled through the small suction riser, which maintains high gas velocity and carries the oil back to the compressor crankcase. When the capacity of the machine is increased, the oil is sucked out of the oil trap and carried back to the machine.

Due to the fact that the evaporative condenser was selected to operate at 40 tons capacity with 78 F entering wet bulb, it was felt that some provision was necessary to maintain sufficient head pressure when the equipment was operating at partial capacity during winter months with low entering wet bulb temperatures. This is accomplished by a micro-switch installed in the high side to maintain a constant head pressure by controlling a modulating type volume damper in the air intake to the evaporative condenser. In winter, to prevent the coil

Continued on page 58

NEWS OF THE INDUSTRY

MUELLER BRASS CO. BUYS VAMPCO FIRM

Fred L. Riggin, Sr., president of Mueller Brass Co., Port Huron, Mich., has announced the purchase by that company of all outstanding stock of the Valley Metal Products Co. of Plainwell, Mich. The new subsidiary will operate as a division of the parent company, although retaining its own trade name of "Vampco." Valley Metal Products Co. manufactures aluminum windows for residential, institutional and commercial buildings as well as the extrusion of aluminum into special shapes. Present plans call for a continuance of the business as now operated.

Tyler Riggin has been named executive vice-president of the Vampco division; Donald O. Stiles, present general manager, is to remain in that capacity. Other officers of the new subsidiary are identical with those of Mueller Brass Co.—F. L. Riggin, Sr., president; Fred L. Riggin, Jr., William R. Walsh and Russell M. Tree, vice-presidents; W. M. Edmondson, secretary and treasurer; L. D. Little, assistant treasurer; Zelda Dunke, assistant secretary.

The board of directors of the Valley Metal Products Co. will comprise the following: F. L. Riggin, Sr.; Fred L. Riggin, Jr.; W. M. Edmondson; Tyler Riggin; E. Schleusener; Frank Levy and A. C. Dappert.

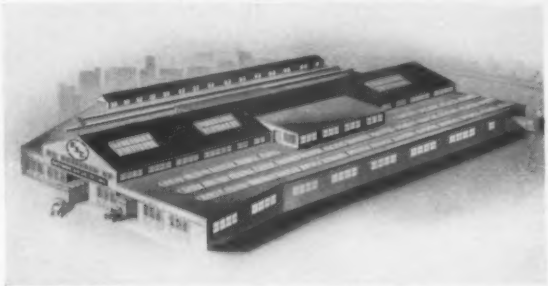
CARRIER REDUCES ROOM UNIT PRICES

Retail price reductions of $20 to $30 on Carrier's entire line of improved 1952 window sill room air conditioners, and a low price of $239.00 for the new ⅓ hp window unit, have been announced.

The new suggested retail prices, f.o.b. Syracuse, list the ½ hp window model at $329.00, the ¾ hp model at $399.00, and the 1 hp model at $469.00.

Carrier also announced addition of a 1 hp console model, available with optional water-cooled condensing. Water-cooled condensing has been made available as an optional feature on the 1 hp console for use in inside rooms where air cooled condensing is not practical.

BALTIMORE AIRCOIL'S NEW PLANT



NEW OFFICES AND MANUFACTURING FACILITIES of Baltimore Aircoil Co., Inc., manufacturer of evaporative condensers and cooling towers, are now located in larger quarters at 2615 Mathews St., Baltimore 18. This new location, the company reports, consolidates all of Baltimore Aircoil's manufacturing operations under one roof, and provides the necessary space to meet the increasing demand for its expanding line of products.

MITCHELL PRICES DOWN $10 TO $20

Mitchell Mfg. Co. has announced price cuts ranging from $10 to $20 on all but one model of its window and room cooler line, according to E. A. Tracey, vice president in charge of Mitchell's air conditioning division.

The only price not reduced was on the ⅓ ton model M-132, Tracey said.

Price reductions on other models in the line were as follows:

M-122, ½ hp, ($329.95), $319.95; M-342, ¾ hp, ($399.95), $379.95; M-2302, ¾ hp, ($419.95), $389.95; M-2082, ¾ hp, ($429.95), $399.95; M-1002, 1 hp, ($469.95), $459.95; M-12082, 1 hp ($479.95), $469.95.

Mitchell produced 54% more room air conditioners in 1951 than were produced in 1950, Tracey said.

PROGRAM FOR REMA ANNUAL MEETING

REMA's annual meeting and its related sessions, to be held at the Greenbrier, White Sulphur Springs, W. Va., will begin on Wednesday, March 26, with a meeting of the board of directors. Product section meetings will be held on March 27, with a cocktail party following on that evening, and the annual membership meeting will be held on March 28.

A number of well-known speakers have been invited to address the March 28 meeting, which will start with breakfast and carry through until luncheon.

4 NEW REMA FIRMS

Refrigeration Equipment Manufacturers Association has announced four new members, as follows: Carrier Corp., Syracuse, N. Y.; Penguin Products, Inc., Detroit; Freezer Box Div., Annapolis Yacht Yard, Inc., Annapolis, Md.; and Bailey & Perkins Co., Utica, Mich.

METHYL NO LONGER UNDER ALLOCATION

National Production Authority has revoked its methyl chloride allocation order, Schedule 8 to M-45, because expanded production facilities and increased operating efficiency have expanded production by more than 500,000 tons a month.

Methyl chloride was placed under allocation June 26, 1951, when defense requirements for the product indicated an estimated annual shortage of 6,400,000 tons.

Methyl chloride is a necessary raw material in several essential programs including synthetic rubber and silicone rubber.

NPA explained that all civilian and military requests have been met in full during the past two months.

REMA OKS PLANS FOR 3 CONFERENCES

Directors of REMA have approved a budget for the holding of three Educational Conferences in various sections of the country prior to November, 1953, the date of the next All-Industry Show.

Committee named by REMA president W. A. Siegfried to supervise and run these conferences consists of John Spence, Hussmann Refrigeration, chairman; G. E. Graff, Ranco; Paul Dompke, Mueller Brass; A. M. Esberg, Eston Chemicals; R. H. Israel, Virginia Smelting; and George Mills, REMA.

Time and locations of the conferences will be decided at a later meeting.

COAST FIRM MOVES

McIntyre Engineering Co., Inc., has announced the removal of its headquarters to a new location at 137 South Linden Street, South San Francisco. The company formerly was located at 3221 Twentieth St., San Francisco.

SWEDEN EXPANDS SERVICE OUTLETS

Sweden Freezer Mfg. Co., Seattle, has recently announced the appointment of six additional firms to handle authorized factory servicing of Sweden equipment. They are:

New England Sales Corp., Providence, R. I.; Knoth and Aiken, Inc., New York City; Standard Refrigeration Co., Charlotte, N. C.; Carl Phillips Refrigeration Service, Bourbon, Ind.; Commercial Refrigeration Service, Tacoma, Wash.; and Associated Refrigeration Co., Minneapolis.

Sweden announces that it has more than doubled its number of authorized service companies within the past year.

USAIRCO APPOINTS 6 NEW DEALERS

Appointment of six new direct factory dealers in the south and southwest for its packaged air conditioning equipment line is announced by United States Air Conditioning Corp.

The new dealers include Monarch Theatre Supply, Inc., Memphis, Tenn.; McAdams Sheet Metal Co., Pascagoula, Miss.; Mandal's Sheet Metal Roofing & Siding Co., Gulfport, Miss.; Goettl Bros. Metal Products, Inc., Phoenix, Ariz.; Nichols Refrigeration Co., Nashville, Tenn.; and Reed Travis & Orsborn Co., McMinnville, Tenn.

B. GLOEKLER CORP. BUYS NEW BUILDING

Bernard Gloekler Corp. announces the purchase of a three-story brick building on Penn Ave., corner 13th St., in Pittsburgh, for use as its display room, engineering and sales office, and warehouse. Occupancy is planned for early in 1952.

These new headquarters are within two blocks of Gloekler's original location, founded in 1856 by the late Bernard Gloekler. Clarence E. Gloekler, grandson of the founder, is executive vice president of the company, and remains active in the operation of the business. Ethan A. Scholnick is president of the company, which has for several years past had offices in the Bessemer Building, Pittsburgh.

The company specializes in the engineering and designing of custom-built food preparation and serving equipment for commercial and institutional kitchens and dining rooms.

WESCO BRANCHES TO SELL REMINGTON

Remington Air Conditioning Div. of Remington Corp., Auburn, N. Y., has announced the signing of distributor franchises with the divisional offices of Westinghouse Electric Supply Co. in Philadelphia and Charlotte, N. C., under which district offices in both of these areas will handle the complete Remington room air conditioner line.

From Philadelphia, Wesco will cover Pennsylvania and New Jersey, with the following district offices also handling the Remington line: 2415 W. Franklin St., Baltimore; 400 S. Market St., Wilmington; 2600 Hampton Blvd., Norfolk; 1216 K St., Washington, D. C.; 511 E. Byrd St., Richmond; 732 First St., Roanoke.

In addition to the Charlotte division, the following district offices under Charlotte will also handle the line; 209 Walker Ave., Greensboro, N. C.; 319 W. Martin St., Raleigh, N. C.; 915 Lady St., Columbia, S. C.; 226 Pendleton St., Greenville, S. C.

E. M. Johnson, Remington regional manager with headquarters in Philadelphia, will be the company's representative contacting the new distributors.

ACME SPRINGFIELD OUTLET EXPANDS

Graham Refrigeration Products Co., Inc., New England representative for Acme Industries, Inc., with headquarters in Springfield, Mass., has announced the opening of two new branches in Cambridge, Mass., and Portland, Me. Graham Refrigeration is the agency for both Acme contractor products and products of its Flow-Cold Division.

Fred W. Smith, former president of Baker Refrigeration Corp., has become a partner in the Graham Refrigeration firm, and will manage the outlet at 52 First St., Cambridge. Graham's headquarters remain at 1694 Main St., Springfield, and the Portland branch will be at 402 Forest Ave.

Ray Graham, who organized the company in 1940, will be in charge of the Springfield office, assisted by William McKlough. Associated with Smith in Cambridge will be Chester A. Garland, who was his assistant when he was president of Baker.

SUNROC ACQUIRES SHEET METAL PLANT

The Sunroc Co., Glen Riddle, Pa., has announced the acquisition of its own sheet metal plant at Palmyra, N. J., for the purpose of manufacturing water cooler cabinets and other sheet metal requirements.

Orville C. Morrison, president, said the subsidiary company would be named the S.O.M. Mfg. Co. in honor of his father, the late Samuel O. Morrison. The plant was formerly owned by Harold Venzie, who had been manufacturing for Sunroc for some time past, and who now becomes president of S.O.M. Mfg. Co.

BAYLOR HOSPITAL USES VIMCO UNITS

Eleven reach-in refrigerators, manufactured by the Victory Metal Mfg. Corp., Philadelphia, were used recently to equip the nation's fourth largest nongovernment hospital—Baylor Hospital in Dallas, Tex., Blickman Co. of Weehawken, N.J., made the installation. Servel Supermetics power the Vimco equipment.

Baylor Hospital, one of the nation's finest, can accommodate 850 patients. The hospital has 1400 employees, in addition to its student nurses. The recently completed Truett Memorial unit is completely air conditioned. For most efficient operation, Baylor Hospital rooms have a two-way speaker system, radio receiver, and telephone. Patients who require oxygen may take advantage of a central supply line that is available for immediate service in each room.

Five Vimco refrigerators for the diet kitchens are located on each of five floors. Five additional refrigerators are installed in the main kitchen, and one, on the ground floor, in the fountain room.

ALCOA DEVELOPS ALUMINUM TUBING

Aluminum Co. of America has announced a new product—"Alcoa Utilitube"—which will handle all refrigerants except methyl chloride.

The product is a general purpose aluminum coiled tube made of new Alcoa aluminum alloy B50S-0.

Alcoa Utilitube is said to cost substantially less per foot than copper and less than other strong aluminum alloys. Depending on size, it may be had in lengths up to 1,000 feet or more.

The tube is said to have good flaring and forming characteristics, excellent resistance to vibration and high resistance to corrosion in many exposures including industrial and sea coast atmospheres. It is said to improve in mechanical properties at sub-zero temperatures, even as low as —320 F.

LEVINE, BRUNDAGE IN NEW G-E POSTS

Two important organizational changes involving establishment of a home heating and cooling department, and a heat pump department in the General Electric Co.'s Air Conditioning Division were announced recently by F. J. Van Poppelen, general manager of the Division.

S. J. Levine has been appointed the new home heating and cooling department, and H. M. Brundage has been named general manager of the new heat pump department.

Van Poppelen explained that these two new departments have been set up to place more specialized attention on the development of their respective lines. He commented further that it is a clear indication of the company's recognition of the huge potential of both the heat pump and year-round air conditioning for the home.

ERNEST SZEKELY NAMED ASHVE HEAD

Ernest Szekely, president of the Bayley Blower Co., Milwaukee, has been elected 1952 president of The American Society of Heating and Ventilating Engineers, it was announced at the society's 58th annual meeting in St. Louis.

KENNARD Engineered COOLING TOWERS

NEW POPULAR *PRICED* PACKAGED ECONOMY LINE

with

CENTRIFUGAL TYPE FAN

KENNARD selected centrifugal type fans (Hot-Dip Galvanized) for **quiet** operation and for their ability to **overcome duct resistance** on indoor installations, and adverse wind effects on outdoor installations. Completely galvanized cabinet—long-lived Redwood fill. Three sizes, 5, 8 and 11 tons.

Consult your KENNARD REPRESENTATIVE for nearest supply, catalogs and quantity discounts.

KENNARD REPRESENTATIVES

Albuquerque, New Mexico	Albuquerque Engineering Co.
Atlanta, Georgia	Hairston & Co.
Baltimore, Maryland	John J. Barry
Charlotte, North Carolina	Chet Adams Co.
Chicago, Illinois	Z. M. Prane
Cincinnati, Ohio	Gary G. Schultz & Assoc.
Clearwater, Fla.	R. J. Clark Equipment Co., Inc.
Cleveland, Ohio	Slawson Equip. Co.
Columbus, Ohio	Gary G. Schultz & Assoc.
Dallas, Texas	Rodgers-Barbeck Co., Inc.
Dayton, Ohio	Gary G. Schultz & Assoc.
Des Moines, Iowa	Elwood C. Giberson
Detroit, Mich.	David S. Falk Co.
Ft. Wayne, Indiana	Paller Engineering Co.
Greensboro, North Carolina	Chet Adams Co.
Houston, Texas	Rodgers & Barbeck, Inc.
Indianapolis, Indiana	Paller Engineering Co.
Johnson City, Tennessee	Eustis Lancaster Associates
Kansas City, Missouri	O. K. McCullough Co.
Knoxville, Tennessee	Eustis Lancaster Associates
Los Angeles, California	Air Equipment Sales Co.
Louisville, Kentucky	Olan J. Hill
Miami, Florida	R. J. Clark Equipment Co., Inc.
Memphis, Tennessee	R. J. Spangler & Co., Inc.
Nashville, Tennessee	Vernon S. Tupper Co.
New Orleans, La.	Wm. H. Dudley, Jr.
New York, N. Y.	Associated Thermal Products, Inc.
Norfolk, Virginia	Chet Adams Co.
Oklahoma City, Okla.	Gordon E. Ervin Co.
Orlando, Fla.	R. J. Clark Equipment Co., Inc.
Passaic, New Jersey	M. Blazer & Son
Peoria, Illinois	C. J. Vespasian
Philadelphia, Pa.	John R. Elistrom
Pittsburgh, Pa.	Harris Sales
Richmond Va.	Chet Adams Co.
St. Louis, Mo.	R. H. Spangler & Co., Inc.
St. Paul, Minn.	J. Fuller Stafford & C. L. Benson
Seattle, Wash.	Northwest Factors
Shreveport, La.	R. F. Zimmerman Co.
Toledo, Ohio	Robert I. Fruth Co.
Wichita, Kansas	Ray F. Bauer

Write for complete information on Air Conditioning Blower Units—Finned Coils—Evaporative Condensers—Cooling Towers—Sprayed Coil Dehumidifiers—Heating and Ventilating Units—Multi-Zone Units.

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Circle No. 88 on Reader Service Card for more information

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CHAMPION

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FREON PROPELLED AEROSOL BOMB PRINCIPLE

Sensational INSTANT PAINT!

The Serviceman's Best Friend

Used Across America

Excellent for Painting or Touching Up

Air Conditioning Equip.
Duct Work
Grilles
Piping and Cocks
Fin Pipes
Convectors
Cabinets
And 101 other uses

For better work and profit! No mixing, no clean-up, no compressor or hose needed. Just shake the can and paint. All cans furnished with guaranteed non-clogging spray valve. 12 oz. can. Complete your jobs the modern way. Ask your jobber for Sprayon today!

Attention Representatives! Some select territories still open. Write for money making details today!

COLORS: Chrome Aluminum ● Gloss White ● Gloss Black ● Meadow Green ● Bright Red ● Medium Gray ● Royal Blue ● Ivory ● Bright Gold ● Copperplate ● Yellow ● Clear Plastic

CHAMPION BRONZE POWDER & PAINT CO., Inc.
2526 W. VanBuren Chicago 12, Ill.

HILDRETH HEADS NEW REMA SECTION

H. F. Hildreth, manager of the Refrigeration Specialties Div. of Westinghouse Electric Corp., and L. C. Love, sales manager of Ebco Mfg. Co., were elected chairman and vice chairman, respectively, of the Mechanical Dehumidifier Section of REMA at a recent meeting in Washington, D. C.

A statistical reporting service on mechanical dehumidifiers will be inaugurated through the REMA offices, in which all manufacturers of this type equipment will be invited to cooperate, whether or not they are REMA members.

As now planned, statistics will cover shipments to distributors by units and dollar value, and shipments to contract accounts by units only, in two size categories: less than ¼ hp, and ¼ hp and over. Monthly figures will be compiled starting with January, 1952, and a summary of 1951 shipments also will be compiled.

Preparation of an industry standard covering ratings, performance, nomenclature, etc., also is planned, with the following men on the committee:

R. H. Tull, Westinghouse, chairman; B. S. Booher, Frigidaire; R. W. Morgan, Fedders-Quigan; Lars Hansen, Carrier; R. C. Hall, Blissfield Mfg. Co.; S. H. Morse, Primus Co.; L. C. Love, Ebco. Other manufacturers of mechanical demumidifiers are being invited to appoint an engineer to this committee.

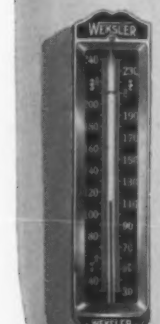
RESTAURANT SHOW SET FOR MAY 5-9

327 nationally known companies who sell to the restaurant market have already reserved exhibit space in the 1952 National Restaurant Show to be held May 5 to 9, at Navy Pier, in Chicago. The entire show will house 704 booths, making this year's exposition the largest ever. It exceeds last year's show by 71 booths.

First day of the show—May 5—has been set aside for a special preview of the show for the jobbers and dealers who contact directly the restaurant market.

REVOLUTIONARY ADJUST-ANGLE THERMOMETER

Solves All Equipment Installation Problems



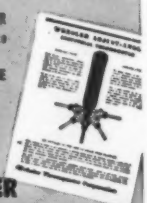
YOUR COSTS ARE LESS . . . Less time on the job for engineers with a WEKSLER ADJUST-ANGLE INDUSTRIAL THERMOMETER because—

NO TIME IS WASTED, Adjusts to ANY angle!

GREATER VISIBILITY . . . Positions to any angle through 180° arc!

REDUCES STOCK REQUIREMENTS . . . Will NOT break under normal shock or vibration!

Today . . . find out how WEKSLER ADJUST-ANGLE THERMOMETER can make things smoother in YOUR plant! Ask your jobber for IMPORTANT FREE BULLETIN AA50, or write to:



WEKSLER THERMOMETER CORPORATION
52-56 W. Houston St., N. Y. 12, N. Y.
"Industrial America's Right Arm"

For Industrial Thermometers Send for Catalog 125.
For Glass Engraved on Stem Thermometers and Hydrometers, Send for Catalog 225.
For Dial Indicating and Recording Thermometers, Send for Catalog 325.
For Dial Indicating and Recording Pressure Gauges, Send for Catalog 525.

Circle No. 36 on Reader Service Card for more information

the Dean Says—

NOW . . . BUY YOUR PLATES IN THE SIZES YOU NEED!

ZINC METALLIZED STEEL, STAINLESS STEEL AND OTHER METALS. CYLINDERS, U's, ANGLES, TANKS, ETC.

DEAN "JOB TAILORED" EVAPORATOR PLATES

DEAN COLD PLATES *for*
FROSTED FOOD DISPLAY CABINETS
ICE CREAM CABINETS
SODA FOUNTAINS
FARM MILK COOLERS
FARM FREEZERS
LIQUID COOLERS
WINDOW DISPLAYS
FOOD COUNTERS
LOW TEMPERATURE TEST ROOMS
REFRIGERATED TRANSPORTATION
Plates also available for Bondelot-type Coolers

Now you can get your plates exactly as you want them . . . any size . . . any shape . . . any metal! Think what this means in time saved . . . MONEY SAVED! Before you buy another plate, get the facts on DEAN "job tailored" cold plates. It will be well worth your while! Ask your jobber, or write

DEAN PRODUCTS, INC.
1042 Dean St., Brooklyn 16, N.Y.
STerling 9-5400
Write for Technical Data Book

Circle No. 37 on Reader Service Card for more information

CONDENSING UNITS

NEW G.E. DOUBLE-IMPACT PROMOTION *tells Your Story to Your Customers*

Hard-hitting advertisements and direct mail program stress importance of your service to your customers!

WHAT G. E. IS DOING

3 Double-Page Ads designed exactly to your needs. They—

- sell spring check-ups now
- urge regular program of preventive maintenance
- promote your services as skilled engineers
- spread your work load on a year-round basis
- advise reliable equipment for replacements

Timed for April, May, June in *"Progressive Grocer" and "Meat Merchandising"*

WHAT YOU CAN DO

Attractive Folder, available without charge at your G-E Parts Depot. Mail copies to all your prospects and customers. It sells *your* services and identifies you with G. E.'s powerful advertising campaign. Cash in now on this unprecedented program!

Your Refrigeration Like Your Car Needs a Spring Check Up!
He Spots Trouble Before it Happens!
GENERAL ELECTRIC
COPIES FREE AT YOUR G-E PARTS DEPOT

GENERAL ELECTRIC

GENERAL ELECTRIC COMPANY, AIR CONDITIONING DIVISION, BLOOMFIELD, NEW JERSEY

Circle No. 38 on Reader Service Card for more information

ONE FOR THE BOOKS . . .

Continued from page 52

freezing up, the damper closes when the equipment is not in operation.

Air unit consists of a four-row direct expansion coil with two circuits, each controlled by a separate liquid solenoid valve and an expansion valve. The unit also has a one-row steam coil, and a steam type humidifier. Filter section of the unit employs filters of the throw-away type.

To assure the availability of steam the year around, it was necessary to provide a small packaged gas-fired steam boiler as part of the installation. This boiler is located in the main boiler room in the basement of the building. Because of the amount of make-up water required, the boiler has an automatic make-up water valve and water is supplied from the existing water softener system.

Existing bare pipe wall radiation within the press room can be used in extremely cold weather to furnish as much additional heat as may be required to keep the room conditions at optimum levels. Whenever the heating coil control valve reaches the full open position, a two-position valve opens to supply the required steam to the bare pipe wall coils in the room.

The gas boiler is interlocked electrically with the temperature control system to prevent any serious damage to paper or presses in the event of power failure when the humidity control valve is in the "open" position.

Control System Described

The automatic control system is a Barber-Colman all-electric system which controls the four principal phases of air conditioning: heating, cooling, humidification, and dehumidification.

Two sensing instruments function as master control points and record the temperature and humidity conditions as well as control. One instrument is used for sensible temperature control, and the other is used for humidity control. The sequence of operation for each of these instruments is similar, in that modulating steam valves are opened on a demand for humidification or heating and a program motor is modulated to the correct position in accordance with the demand for dehumidification or cooling.

Controlling Temperature

The temperature sensitive instrument, upon a demand for heating, first rotates a program motor to its full off position decreasing the effective work of the refrigeration machine in a series of stages from 100% to 0%. On a continued demand for heating, the automatic steam valve is opened with modulating action to supply steam to the heating coil in the air conditioning unit. This instrument has a throttling range of approximately 5° so that full modulating action is obtained, and an infinite number of control positions is therefore provided.

The humidity sensitive instrument, on a demand for more humidification, rotates the program motor in a similar manner to decrease the refrigeration effect. On a continued demand for humidification the modulating steam valve on the humidifier begins to open allowing steam to enter the supply air, thereby increasing the

RESULTS in MINUTES ...NOT HOURS!

Thawzone starts to eliminate moisture as soon as it mixes with the refrigerant. Time is not lost waiting for the refrigerant to pass through a cartridge many times. With cartridge driers, only a small percentage of the charge is in contact with the holding elements.

With Thawzone, an enormous number of molecules of this liquid drier make contact with moisture throughout the entire unit. . . . AT THE SAME TIME You are able to put the unit back into operation promptly without further freezeups.

FREE OF CORROSION AFTER 2 YEARS

The above needle valve was removed after two years of continuous use in a Thawzone-treated system. Thawzone maintained clean corrosion-free surfaces. This could not be accomplished if alcohol were used. The destruction of water by Thawzone is an important action. The moisture is not held in the unit to invite freezeups, corrosion and callbacks later. Do you really know these facts on Thawzone?

1. Reaches all parts of the unit.
2. Actually destroys moisture . . . not a mere antifreeze.
3. A patented invention . . . cannot be copied.
4. No pressure drop possible.
5. Not subject to oil clogging.
6. Neutralizes acids and prevents corrosion.
7. Prevents copperplating.
8. Prevents moisture trouble in new units.
9. Costs less. Only about 8¢ per lb. of refrigerant treated.
10. One product for all "Freon" and methyl units.
11. Only ⅛ oz. per lb. of refrigerant required.

Order a bottle of Thawzone from your wholesaler today. Highside Chemicals Co., Clifton, N. J.

THAWZONE®

The Only Product That Destroys Water... and Reaches All of it

Circle No. 39 on Reader Service Card for more information

humidity condition in accordance with the demand set up on the humidity controller.

Under this system of control no summer-winter switch-over is required as the above mentioned instruments are always ready to correct the unfavorable condition regardless of what that unfavorable condition is. For instance, it is possible on a demand for dehumidification requiring refrigeration that the sensible temperature control point may tend to drift to a lower level. This is immediately corrected by the ability of the sensible temperature instrument to increase the steam flow to the heating coil thereby reheating the air which had previously been dried by the use of the refrigeration coil.

Type of Instruments

The control instruments are of the balanced electrical bridge type employing the use of resistance elements for temperature sensing and humidity sensing. The humidity control element is a resistance wire wound on an insulating spool and coated with lithium chloride salt which has an affinity for water, and will, in taking up water from the air, decrease the resistance in the element, and when giving off water or drying out increase the resistance. This element follows a linear curve within a narrow range of approximately 10% to 12% scope.

It has been observed that the humidity sensing ability of this instrument is far in excess of even the sling psychrometer. Drifts from the normal control point of 2% have been observed, which drift could not be determined from sling psychrometer tests. Because of this great sensitivity the control system, particularly for humidity, has been able to function so as to maintain a true control point within 1% plus or minus of that required.

Greater Accuracy Possible

Actually this means that on a wet bulb thermometer or hair element humidity indicator no appreciable drift in the control point could be observed. The close control offered assures multi-color printing methods of an absolute constant as far as paper material is concerned, thereby offering greater accuracy on offset lithographing than heretofore attained.

The complete control system was furnished and installed as a subcontract by the Richard Equipment Co. of Cincinnati.

Since American Book Co. buys paper in carload lots, and stores it within the conditioned area, the product load represented by the paper itself had to be considered in the job calculations.

In this job, the paper supplied by the mills (information on this was obtained in advance of final selection of the equipment to be installed) has the desired moisture content, and so requires little conditioning after being received.

However, if this were not the case, it would be necessary to separate the sheets of paper for conditioning purposes, since it is impossible to condition paper in bulk form as it is normally stacked.

Paper which had to be conditioned after being received in order to make it comply with conditions within the color printing area would add considerably to the load on the air conditioning system, and to its ultimate cost.

Superior Globe Valves

are built with quality and the serviceman in mind

Bolted bonnet easily removed for soldering valve in line
Specially developed packing
Synthetic gasket insures life-time seal and positive reassembly of bonnet
Metal to metal bonnet seal
Full-floating swivel-type seat
Backseating, can be repacked under pressure

SIZES—⅞" thru 4⅛"

Superior valve and fittings co.

Pittsburgh 26, Pa.

Circle No. 40 on Reader Service Card for more information

STOP LOSING . . .
Continued from page 39

Receivable Age Analysis'. Each day during the balance of the month, the payments on individual accounts are indicated on this form.

"A red pencil is used to cross off the name and amount when the account is paid, and the date of payment is indicated. Thus, those names and amounts not scratched off this list by the 12th or 13th of the month stand out readily and provide the indication that brings the matter to our attention.

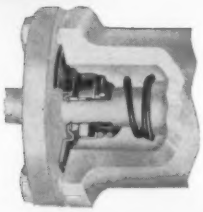
"As soon as the Accounts receivable Age Analysis has been prepared by the bookkeeper, a tally sheet is started which consists of five columns, as illustrated at the beginning of this article. This tally sheet of accounts receivable provides a running record which shows at a glance opposite each day of the month the amount collected on that day, the total amount collected during the month to that date, the current balance due, and the percentage of all the month's accounts receivable collected to date.

"To bring this tally sheet and the age analysis up to date each morning requires only a few minutes of the bookkeeper's time, but it pays real dividends by enabling the manager of the business to keep his finger continually on the pulse of the accounts receivable situation.

"In addition to actually preventing losses through uncollectable accounts," this dealer points out," our system of handling accounts receivable has still another benefit. It is interesting to observe that the percentage collected on any day of the month is always very close to the same percentage of other months, and this factor is a big help in enabling the management to gauge the amount of money that can be anticipated on any particular date."

ROTARY SEAL Replacement Units

UNIT NO. 1115



AVAILABLE FOR MORE THAN
900
COMPRESSOR MODELS

Easy to Install Efficient in Operation
Simple in Construction Economical

For Commercial, Semi-Commercial, Air-Conditioning and Home Refrigerator Compressors . . Proven by outstanding performance over 20 years!

AT ALL THE mechanical seals for ROTARY SEAL COMPANY rotating shafts LEADING JOBBERS

"Seal with Certainty!"

2020 NORTH LARRABEE STREET
CHICAGO 14, ILLINOIS, U.S.A.
CANADIAN AGENT: 2025 ADDINGTON AVENUE
MONTREAL 28, QUEBEC, CANADA

Circle No. 41 on Reader Service Card for more information

AMERICAN-STANDARD NAMES COOPER S.M.

William B. Cooper has been appointed to the newly created position of sales manager of engineered products for American Radiator & Standard Sanitary Corp.

Cooper will head a new department handling the sale of air conditioning, cooling and specialized heating equipment.

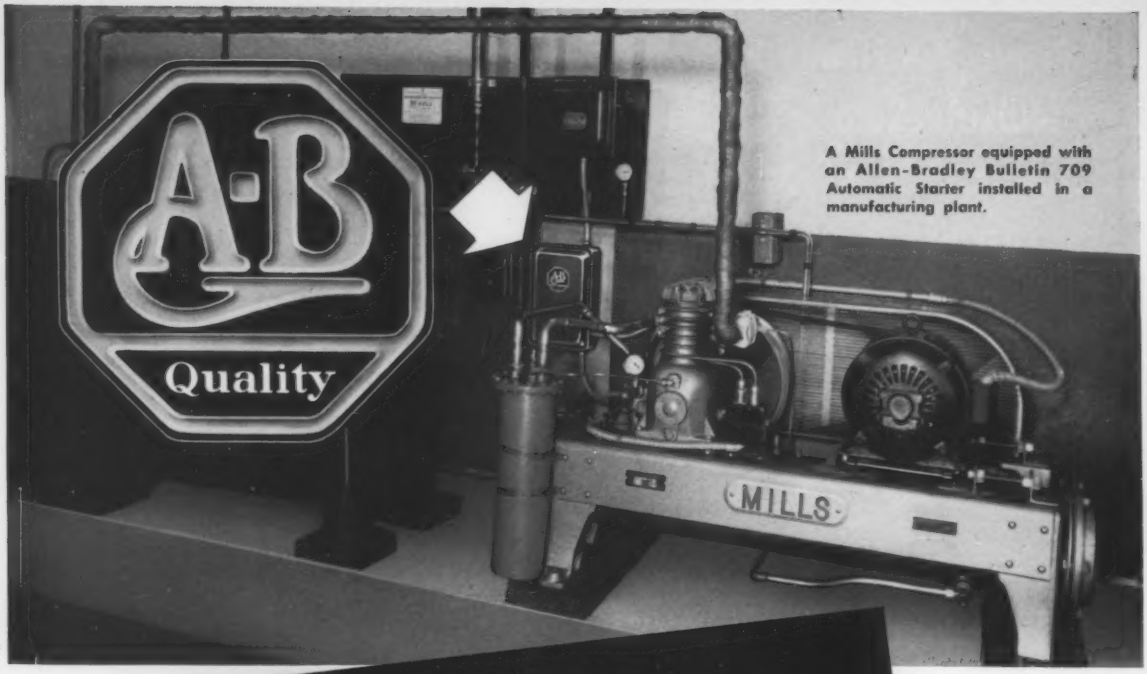
The engineered products department was created, according to D. D. Couch, vice president of sales, because of "the increasing volume of air conditioning sales and the number of new products that American-Standard is developing in this field."

TURNER NAMED HEAD OF AMERICAN BITUMULS

American Bitumuls and Asphalt Co. has announced election of C. W. Turner as president of the company, and named C. W. Stewart to the newly-created position of vice-chairman of the board of directors. Stewart has been president of the company.

RCA-VICTOR JOINS ACRMA

The RCA-Victor Division of Radio Corp. of America has become a member of the Air Conditioning and Refrigerating Machinery Association. RCA recently announced its entry into the room air conditioner field.

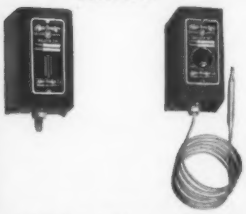


A Mills Compressor equipped with an Allen-Bradley Bulletin 709 Automatic Starter installed in a manufacturing plant.

MILLS REFRIGERATION UNITS equipped with ALLEN-BRADLEY TROUBLE FREE MOTOR CONTROLS

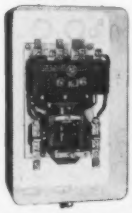
Typical Refrigeration Controls

PRESSURE AND TEMPERATURE CONTROLS



A-B Bulletin 836 pressure control and A-B Bulletin 837 temperature control. Accurate, rugged, compact units.

AUTOMATIC STARTER



A-B Bulletin 709 solenoid starter. Note white interior for ease of wiring.

COMBINATION STARTER

A-B Bulletin 712 disconnect switch type combination starter. Saves installation time.

Why are Allen-Bradley starters so popular for refrigeration and air conditioning service? . . . because they are trouble free. Only ONE moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

No contact maintenance . . . Allen-Bradley silver alloy contacts never need cleaning, filing, or dressing.

Dependable overload relays . . . Allen-Bradley thermal relays are accurate and always dependable . . . even after long service.

The Allen-Bradley trademark stands for millions of trouble free operations.

Allen-Bradley Co.

1340 S. Second St., Milwaukee 4, Wis.

ALLEN-BRADLEY SOLENOID MOTOR CONTROLS

Circle No. 42 on Reader Service Card for more information

"Prove the Need and the Sale Takes Care of Itself!"

FOR ACCURATE INFORMATION ON RELATIVE HUMIDITY and TEMPERATURE . . . RELY ON

Bendix-Friez

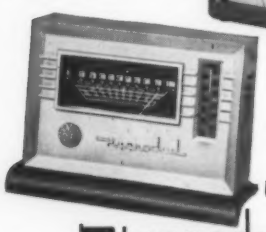
When your customers see the facts and figures, your selling job virtually disappears. With precision-made, dependable Bendix-Friez instruments you can demonstrate with on-the-spot readings or recordings exactly how much and where your customers need temperature and humidity control for maximum comfort in the home, maximum efficiency in industrial operations. Bendix-Friez instruments are built to U. S. Weather Bureau standards by the world's oldest and largest manufacturer of fine meteorological equipment. Write for complete information.

BENDIX-FRIEZ

MODEL 160

Portable Humidity and Temperature Recorder

3" x 5" charts, 10 or 30 hour records. Modern design . . . handy for small space and difficult locations . . . built to meet unusual conditions.



BENDIX-FRIEZ

Hygrodial

Precision Humidity and Temperature Indicator

Hair-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4" high, 6" wide, 2½" deep—desk or wall mounting.

FRIEZ INSTRUMENT DIVISION of

1310 Taylor Avenue

Baltimore 4, Maryland

Bendix AVIATION CORPORATION

Export Sales: Bendix International Division
72 Fifth Avenue, New York 11, N.Y.

Circle No. 43 on Reader Service Card

USEFUL BULLETINS · BOOKLETS · CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

Low Temperature Insulation . . . This 20-page illustrated bulletin (IN6.A3) is chock-full of design data pertaining to the application of Fiberglas insulation to low temperature installations. Detailed instructions are provided for applying this insulation to floors, roofs, partitions, and pipe lines, and to either masonry or wood surfaces. Construction details are fully diagrammed in each case. Available from Owens-Corning Fiberglas Corp.

Circle No. 101 on Reader Service Card

Instruments and Controls . . . Principal instruments, control devices, and related components manufactured by the Industrial Div. of Minneapolis-Honeywell Regulator Co. are covered in this 28-page catalog (No. 5000). Specifications of approximately 100 measuring and control instruments and valves are outlined.

Circle No. 102 on Reader Service Card

Roof Ventilators . . . Information of interest to any contractor doing industrial ventilation work is contained in this new catalog of "Breidert Air-X-Hausters". Test results are charted and application diagrams provided. Various models are illustrated and described. Available from G. C. Breidert Co.

Circle No. 103 on Reader Service Card

Hardware . . . A 100-page catalog describing more than 200 items of hardware extensively used by the commercial refrigeration industry. Full-size illustrations, diagrams of installations, and complete specifications are included. A new hardware guide, compiled under headings of particular refrigeration units, has been included to simplify the selection of specific items. Available from Kason Hardware Corp.

Circle No. 104 on Reader Service Card

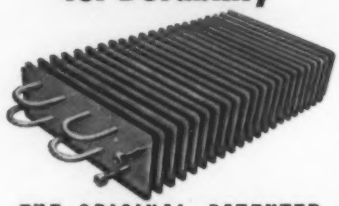
Unit Heaters . . . Selection and application of "Torridor" blower-type unit heaters is explained in a revised 56-page catalog issued by Trane Co. Complete capacity information and performance data is provided on units with capacities from 100,000 to 1,500,000 Btu. These units are specially designed for heating and ventilating large areas such as factories or warehouses.

Circle No. 105 on Reader Service Card

Capacitors . . . Cornell-Dubilier Electric Corp. has released this 28-page catalog (200C) which is believed to be one of the most complete and comprehensive catalogs of service replacement capacitors ever published. Many new types are shown for the first time in this catalog.

Circle No. 106 on Reader Service Card

LOOK to LARKIN for Durability



THE ORIGINAL, PATENTED CROSS-FIN COIL

The refrigeration coil that changed an industry stands today unchallenged for performance, user satisfaction and lasting durability. Made from only the finest materials by skilled craftsmen under exacting standards, every Larkin Coil features imbedded fin-to-tube contact, swaged connection, silfos welded construction, and staggered tubing. Write for complete details.

Manufacturers of the original Cross-Fin Coil — Humi-Temp Units — Evaporative and Air Cooled Condensers — Air Conditioning Units and Coils — Direct Expansion Water Coolers — Steel Vacuum Plate Coils — Heat Exchangers.

WATCHDOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS

519 MEMORIAL DR., S.E. • ATLANTA, GA.

Circle No. 44 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

Read Why This Successful New Hotel Uses Kelvinator Condensing Units

Frederick Martin Hotel
Moorhead, Minnesota

Ethan S. Brown,
Manager

In One Year, The Frederick Martin Won National Recognition: Read How Its Refrigeration Is Taken Care Of, By Kelvinator!

THE FREDERICK MARTIN HOTEL - MOORHEAD, MINNESOTA

Nash-Kelvinator Corporation
14250 Plymouth Road
Detroit 32, Michigan

September 20, 1951

Gentlemen:

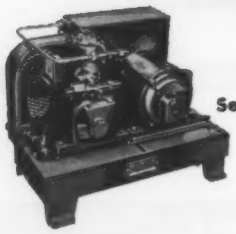
Newsweek magazine called us "one of America's finest small town hotels."

We're proud of that comment and pleased too, that our guests seem to feel the same way about us.

Our equipment and facilities have helped us earn this reputation and we're happy to report that the 16 Kelvinator units installed to meet our refrigeration needs have given us very satisfactory service. As we enter our second year, we look forward to a continuance of further efficient, dependable and economical operation.

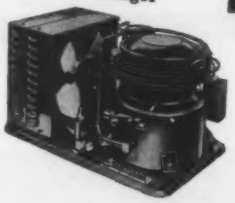
Very truly yours,

Ethan S. Brown, Manager



See the complete range of Kelvinator open-type condensing units—from ¼ H.P. to 5 H. P.

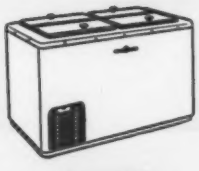
See the selection of 16 Kelvinator hermetic models, up to and including ½ H. P.



KELVINATOR BEVERAGE COOLERS

KELVINATOR FROZEN FOOD MERCHANDISERS

KELVINATOR WATER COOLERS



KELVINATOR ICE CREAM CABINETS

KELVINATOR AIR DRIERS

Circle No. 45 on Reader Service Card for more information

NEW PRODUCTS

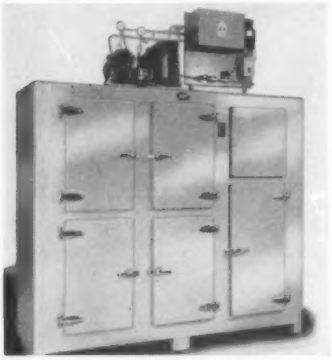
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Storage Freezer

Product: Model 90 super market storage freezer.

Manufacturer: Federal Refrigerator Mfg. Co., Waukesha, Wis.

Features: Capacity of 91.4 cu. ft.,



with space for storage of 2600 standard packages of ice cream or 2800 packages of frozen food. Constant temperatures maintained for frozen food at zero to 5 F, and for ice cream at -5 to -10 F. Sectional construction for access through small doors. Evaporator automatic hot gas defrost. Insulation of high density non-settling type. Five easy-to-use doors with rugged hardware. Self defrosting, with all necessary controls, valves, etc. mounted complete on panel board. Gray enamel exterior, galvanized interior. Also available in 60 and 118-cu. ft. sizes.

Circle No. 130 on Reader Service Card

Humidity Controller

Product: Sensitive, low-cost humidity control (Model H 64A).

Manufacturer: Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

Features: Designed primarily for manufacturers of portable and package humidifying and dehumidifying systems and for other applications which require a low-cost humidity controlling device. When tested in special chamber it proved to have an operating differential of less than 5%, with air moving through the chamber at 1200 fpm and a humidity change rate of 1% per minute. Heart of this electrical humidity device is a hair element which is extremely sensitive to moisture in the air.

Circle No. 131 on Reader Service Card

Soft Drink Dispenser

Product: New soft drink dispenser.

Manufacturer: Uniflow Mfg. Co., Erie, Pa.

Features: Dispenser comes in variety of models with three-way faucets available on either front of cabinet or gooseneck type on cabinet top. Has attached cabinet for syrup tanks which can be changed to remote location if desired. Dispenser gives four different flavors of carbonated

soft drinks plus plain soda and ice water. Company claims capacity large enough to meet any peak period, or a long continuous draw at low temperature. Unit incorporates Liquid Carbonic carbonator along with all necessary refrigeration, ½ hp Servel sealed unit, plus necessary fittings, gauges and restrictors. Company sees volume market for this equipment in soda fountains, concession stands, restaurants, taverns, hotels, drug stores, schools, etc.

Circle No. 132 on Reader Service Card

Metal Treating Cabinet

Product: "Rigid-Frigid" low temperature cabinet designed for industrial uses such as rivet cooling, shrink fitting, and size stabilization.

Manufacturer: Brewer-Titchenor Corp., Binghamton, N.Y.

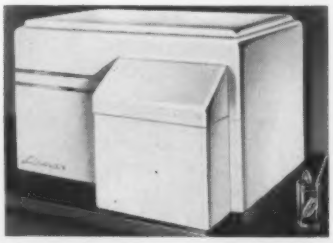
Features: Holds temperatures as low as –40 F in compact cabinet 40 inches long, 36 inches high, and 32 inches wide, with 2½-cu.ft of refrigerated storage space. Unusual feature is easy-acting foot treadle which opens the lid and leaves both hands free for handling materials to be treated. Powered by ⅓-hp hermetic unit.

Circle No. 133 on Reader Service Card

Table Model Ice Maker

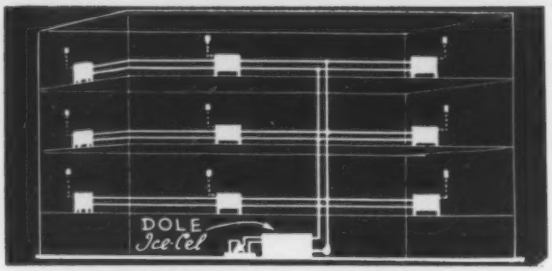
Product: Lipman Junior "Ice Boy" counter model ice tip machine.

Manufacturer: Lipman Refrigeration, division of Yates-American, Beloit, Wis.



Features: Smallest automatic ice maker on the market. Measures only 20 inches high, 32 inches wide, and

Don't Tear Up Floors
TO AIR CONDITION BUILDINGS

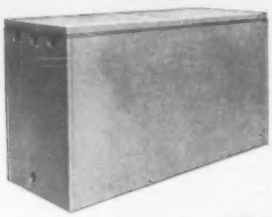


One method of air conditioning old buildings

USE

DOLE

Ice-Cels



DOC DOLECO Says—Whether a home, a school, a church, a store, an office or a factory, DOLE Ice-Cels will provide perfect comfort cooling without tearing the building apart or interfering with the occupants.

Show your prospects that you can air condition their buildings without tearing up floors or partitions. No building owner wants the muss and litter of remodeling—the cost of expensive alterations. Show your prospects that you can install an air conditioning system by placing a DOLE Ice-Cel and compressor in the basement or unused space, running small tubing up to each floor and installing forced air convectors with separate controls for each, and you'll land the job.

It's not too early to plan for 1952. First, get complete data on Ice-Cels from your nearest DOLE representative or the factory. Then make a list of buildings in your territory needing air conditioning. By the time you have lined up orders it will be time to get the materials and start operations.

Write for literature and name of nearest DOLE representative.

DOLE Vacuum COLD PLATES — Maximum Refrigeration Efficiency — for all REFRIGERATION PURPOSES

DOLE REFRIGERATING CO.

5942 N. PULASKI RD., CHICAGO 30, ILL.

103 Park Ave., New York 17

IN CANADA: DOLE REFRIGERATING PRODUCTS LIMITED, 44 ELGIN STREET, BRANTFORD, ONTARIO.

Circle No. 34 on Reader Service Card for more information

Good to the last *Drip*

Eastern hot CONDENSATE DISPOSAL UNIT

Automatically removes hot condensate from air conditioning units . . . .

This completely automatic unit disposes of hot liquid condensate at temperatures up to 200-210F. It's easily installed in air conditioning, or similar systems, where normal gravity drain-off is not possible. Quiet and reliable, it requires no oiling or maintenance during its long life. Low operating cost and rust proof construction make this compact and rugged unit a worthy investment in convenience. Complete catalog material on request.

SPECIFICATIONS

TANK: Capacity — Approximately 0.8 gallons. Brass with black enamel outside.

PUMP: Bronze centrifugal pump. Delivery approximately 4½ GPM at O PSI and shut off of 12½ PSI.

MOTOR: 1/40 HP, 3450 RPM, single phase, 60 cycles, 115 volt, totally enclosed, ball bearing, capacitor start motor.

WEIGHT: 23 pounds.

CONTROL: A switch, operated by a float, is so set that the pump will pump out approximately 0.4 gallons of condensate at each operation. A check valve built into the outlet prevents the outlet line draining back into the tank.

WIRING: The unit is provided with a knockout hole for attachment of BX Cable for the motor. All wiring is enclosed in unit.

Eastern **INDUSTRIES, INC.**

296 ELM STREET, NEW HAVEN, CONNECTICUT

Circle No. 89 on Reader Service Card for more information

20 inches deep. Produces ice tips of any desired size at the rate of 100 pounds a day. Completely automatic. Stops operation when storage of ice is at capacity (1.5 bushels) and starts again when supply of ice is partially expended. Ice forms on freezer tips located in bottom of freezer tank, is released from these tips during defrost cycle, and rises to surface of water where it is removed to storage bin by revolving paddle. Continuous motion of paddle keeps water in circulation and insures fresh, clear freezing of ice tips. Tips have no flat surface, will not stick together in storage. They are shaped like a cylinder rounded on both ends. Only moving part is revolving paddle. Water consumption is negligible, as only water used is that which actually forms the ice tips.

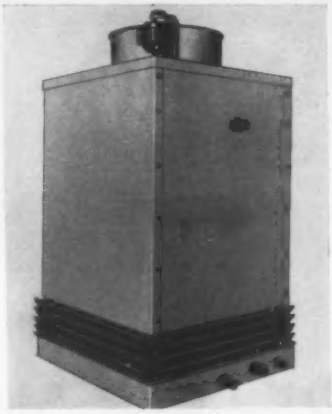
Circle No. 134 on Reader Service Card

Cooling Towers

Product: "Standard" series induced draft cooling towers.

Manufacturer: Havens Structural Steel Co., Kansas City, Mo.

Features: Designed for application to refrigeration and air conditioning jobs of 2 tons capacity and up. Constructed to last indefinitely with minimum preventive maintenance. Available with choice of three



fill arrangements: no wood fill in tower; efficient lockjoint redwood; or lockjoint redwood of maximum efficiency. Frames copper nailed. Inside finish of specially developed mastic type rust-inhibiting coating. Outside finish is gray rust-inhibiting enamel. Shipped knocked down and crated for maximum economy. Installation is simple. Slow speed over-size propeller fan, venturi-type fan ring. Easily accessible anti-clog nozzles. Efficient drift eliminators.

Circle No. 135 on Reader Service Card

Air Filter

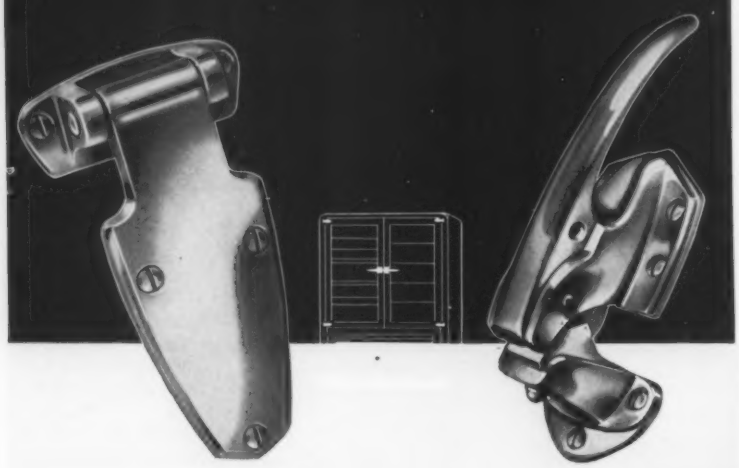
Product: A washable, plastic air filter for air conditioning systems and forced draft hot air furnaces.

Manufacturer: Goodyear Tire & Rubber Co., Akron, Ohio.

Features: Capable of catching pollen in the air and even the most minute solids in cigarette smoke. A

Grand Rapids Brass

COMMERCIAL REFRIGERATION HARDWARE
FOR NEW EQUIPMENT OR REPLACEMENT



Locks, Strikes and Hinges
that Contribute to Quality
in the World's Finest Refrigerators

Grand Rapids Brass Company
GRAND RAPIDS, MICHIGAN
A DIVISION OF CRAMPTON MANUFACTURING COMPANY

Circle No. 48 on Reader Service Card for more information

self-charging electrostatic unit which takes useful advantage of the dielectric properties of certain plastic films, resins, and waxes. Material used in filter is a thin polyethylene film shredded into a porous mass which, when exposed in a current of air, picks up an electrostatic charge that attracts and retains finest of dust soot or smoke particles which may be suspended in the air. By nature of its dielectric properties, filter is effective throughout its entire thickness. Easily cleaned by simply rinsing in cold water. No detergent is required, and after rinsing the filter can be drained for several minutes and restored to service while still damp. May be cleaned repeatedly without loss of performance.

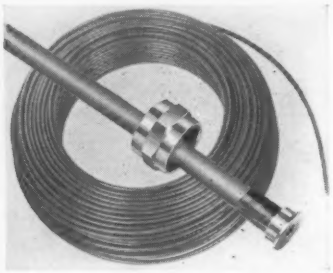
Circle No. 136 on Reader Service Card

Plastic Tubing

Product: "Flexlite" plastic tubing.

Manufacturer: Hudson Industries, Inc., Detroit, Mich.

Features: While primarily intended for use in beverage dispens-



ing systems, its properties are such that it offers many possible uses in fluid, gas, or low vacuum pressure systems. Tasteless, odorless, and nontoxic. Useful for conveying CO_2 gas and water to the carbonator and carbonated water to the dispenser. Also handles air from compressor to sirup tanks and sirup to dispenser. Dense, smooth inside surface makes it ideal for beer line. Will not harden with age, dry out, become brittle, or crack. Has no moisture absorption. Tensile strength of 600 psi at 70 F. Specially designed series of fittings makes installation easy and use simple. Now available in ¼ and ⅜-inch i.d. sizes.

Circle No. 137 on Reader Service Card

Room Conditioner

Product: New low-priced 1/3-hp window sill room air conditioner.

Manufacturer: Carrier Corp., Syracuse, N. Y.

Features: Developed to meet growing demand for small offices, bedrooms, and other spaces where

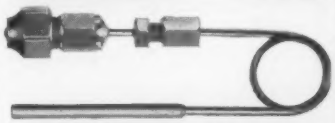
cooling loads do not require large-capacity equipment. Except for price and capacity it is similar to Carrier's other models in every respect, including vibrationless hermetic compressor, streamlined heavy-gauge cabinet, and 5-year warranty. Simplified finger-tip control for cooling and dehumidification with either outside or room air, or for ventilation only with filtered outside air. Window mountings equipped with special weatherproofing seal.

Circle No. 138 on Reader Service Card

BUY FROM YOUR REFRIGERATION WHOLESALER

Allin

Adjustable CAPILLARY TUBE



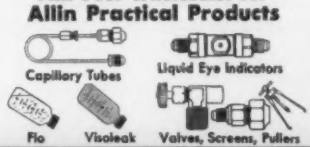
for Refrigerant Control with 1 Setting for all refrigerants!

Easily Adjusted to provide an accurate means of metering the flow of all refrigerants for specific temperature conditions. Two sizes cover all capacities from the smallest unit through one horsepower.

Supplied ready for installation. Standard ⅜" x ¼" reducing flare nut on inlet, and either ⅜" male flare or 3" length of ¼" tubing on outlet. Removable 150 mesh monel screen. Silver soldered connections.

Send for Bulletin SE-51

Ask Your Wholesaler for Allin Practical Products



ALLIN MANUFACTURING COMPANY

1153 West Grand Ave., Chicago 22, Ill

Circle No. 85 on Reader Service Card

take a closer look at...

United WIRE's

UDD

COPPER REFRIGERATION TUBING

UNITED means that it's the product of 83 years of precision tube mill experience and that it's produced on new equipment, by new processes and fine quality controls unequalled anywhere within our industry . . . that it is better quality, has extra values . . . without expectation or demand and at no extra cost.

DEOXIDIZED means that all oxides, grease, dirt, slivers, copper dust and foreign substances common to copper tubing have been 100% removed by special processing to prepare it for use, as received, in the finest and most delicately balanced mechanical equipment or control instruments.

DEHYDRATED means that all moisture has been removed prior to sealing and Trade Marking.

Putting them all together . . .

"UNITED DEOXIDIZED DEHYDRATED" means finer, the finest, Copper Refrigeration and Air-Conditioning Tube made anywhere. UDD will earn your respect and completely justify your confidence in regularly specifying it.

UNITED WIRE & SUPPLY CORPORATION

PROVIDENCE, RHODE ISLAND

SALES OFFICES

New York, Rochester, Minneapolis, Chicago, Lansing, Mich., Pittsburgh, Hartford, Conn., Akron, Los Angeles, Springfield, Mass., Philadelphia

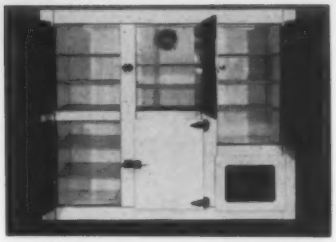
Circle No. 46 on Reader Service Card

Pantry Refrigerator

Product: Model UP5S five-door pantry refrigerator.

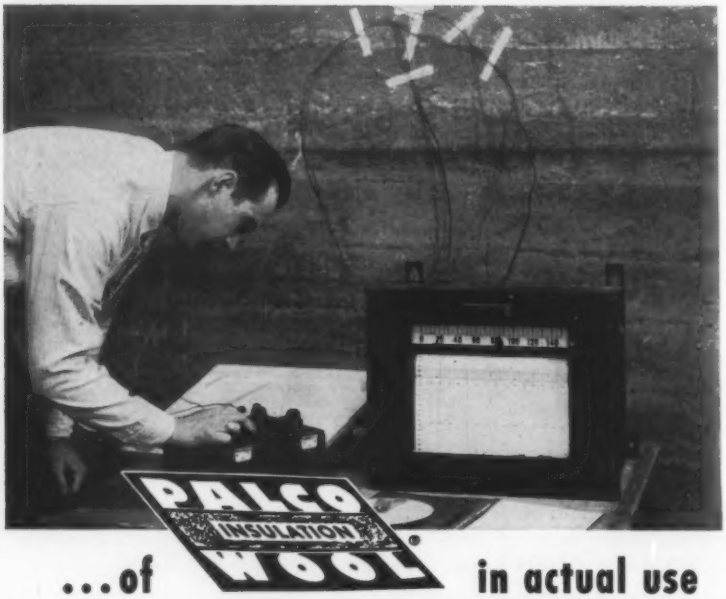
Manufacturer: Friedrich Refrigerators, Inc., San Antonio, Tex.

Features: New panel-type coils engineered to Government specifications make refrigerator ideal for any climate. These coils, plus extra-heavy insulation materials used in construction of cabinet, eliminate "warm areas" inside box regardless of outside climatic conditions. Solid doors are sealed against outside air by synthetic rubber gaskets. Heavy steel inner and outer linings with rounded corners. Exterior finished in white acid-resistant porcelain. Roomy shelves of bar-type lacquered zinc are fully adjustable. Two interior lights illuminate automatically when any of five doors are opened. Only connection required is ¾-inch drain and electrical connection. Measures approximately 7½ feet wide, 6½ feet high, and 32 inches deep.



Circle No. 139 on Reader Service Card

NEW *In-Place* FIELD TESTS MEASURE INSULATION EFFICIENCY



...of in actual use

For the first time, newly developed scientific *in-place* tests now measure the installed efficiency of Palco Wool after many years' use. Conducted under actual operating conditions by independent refrigeration engineers, these impartial field tests provide invaluable factual data never before available from laboratory findings. Information developed from this continuing series of applicational tests opens up an entirely new concept of low-temperature insulation efficiency. Results of these *in-place* field tests are now available. To obtain this valuable data, request: Technical File No. CR-1

CERTIFIED INSULATION

THE PACIFIC LUMBER COMPANY
100 BUSH STREET, SAN FRANCISCO 4, CALIFORNIA
35 EAST WACKER DRIVE, CHICAGO 1, ILLINOIS

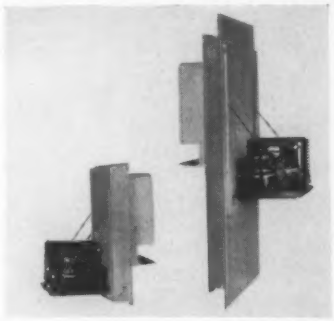
Circle No. 50 on Reader Service Card for more information

Plug-In Panels

Product: Self-contained, valve system plug-in panel units for walk-in coolers.

Manufacturer: Loudon Mfg. Co., Minneapolis, Minn.

Features: Available with General

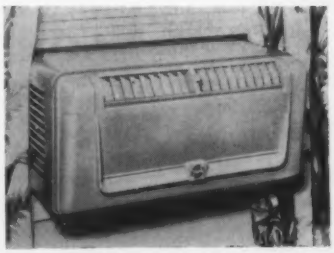


Electric, Copeland, or Kelvinator compressors in ⅓, ½, or ¾-hp sizes. All units have automatic temperature controls and McQuay blower coils. The ⅓-hp unit has a P-180 coil; the ½-hp unit has a P-250 coil; and the ¾-hp unit has a P-355 coil. All three units are hermetically sealed and carry a 5-year warranty. They are delivered ready to plug into any 110-volt circuit.

Circle No. 140 on Reader Service Card

Window Cooler

Product: 1-hp window-sill type room air conditioner known as Model 51.

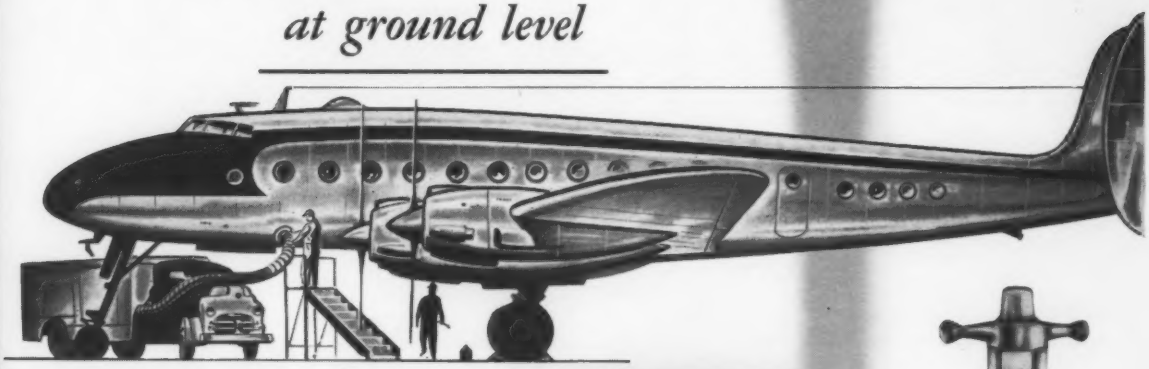


Manufacturer: York Corp., York, Pa.

Features: Designed for handling large size rooms. Fraft-free circula-

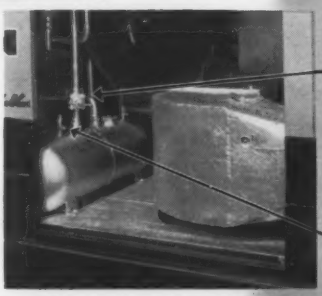
Where Quality Counts Most – it's **KEROTEST**

5000 foot coolness at ground level

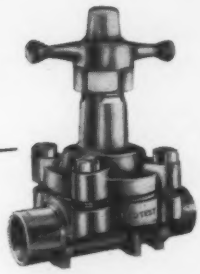


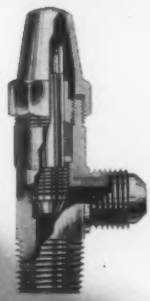
KEROTEST

On the critical jobs . . . those that must function dependably day-in and day-out . . . it's KEROTEST Refrigeration Valves and Fittings. Yes, where *quality* counts most as it does on this mobile aircraft air conditioner . . . Kerotest's *extra quality* is the choice and *at no extra cost!* When you buy . . .buy KEROTEST . . . and be sure.



Mobile Aircraft Air Conditioning Unit assembled by Airtemp Construction Corp., Dayton.





See Your Kerotest Wholesaler FIRST

KEROTEST

KEROTEST MANUFACTURING COMPANY
Pittsburgh 22, Pa.

Circle No. 51 on Reader Service Card for more information

Investigate the many advantages of using

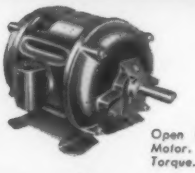
the Wagner Part-Winding Increment Motor and Starter Combination

The Wagner part-winding increment motor and starter combination provides an economical method of starting polyphase squirrel-cage motors when reduced current draw at start is required. No auto-transformers or resistors are necessary.

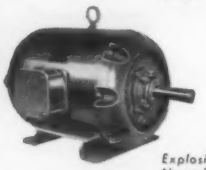
Wagner polyphase motors for part-winding starting, both normal and high torque, are wound with two circuits in parallel. The magnetic type increment starter has two magnetic contactors. When the first contactor closes, the line is connected to one group of the motor windings and a pneumatic timer is started. After the desired time interval, the pneumatic timer closes the second magnetic contactor which connects the line to the other part of the motor winding. Using this motor and starter combination, the current drawn from the line is about 60 percent of the normal locked current of the motor. It has the advantage that the current taken from the line is not broken during the starting period, as is the case when auto-transformers or compensator-type starters are used.

Motors with manual type starters are also available.

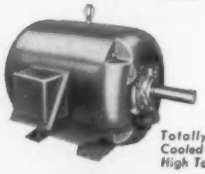
This magnetic part-winding increment starter can be furnished in combination with any of these Wagner Motors.



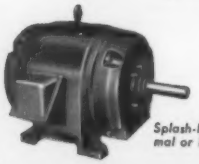
Open General Purpose Motor. Normal or High Torque.



Explosion-Proof Motor. Normal or High Torque.



Totally-Enclosed Fan-Cooled Motor. Normal or High Torque.



Splash-Proof Motor. Normal or High Torque.

WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

Wagner Electric Corporation EST. WE 1891

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 32 PRINCIPAL CITIES

M39-8

Circle No. 52 on Reader Service Card for more information

tion is accomplished by means of easily adjustable rotary grilles. Far corners of the room are reached with cooled air through the action of the big multi-blade disc type fan. Smartly styled to blend with finest furniture, models are available in two-tone tan and dark ivory finish to harmonize with any color scheme. Cooling maze coil of stagged tube and corrugated fin design. Easily replaceable, heavy duty filters. Finger-tip controls permit intrduction of outside air at any time, with or without cooling. Pump-out control quickly removes stale air. Hermetically sealed refrigeration circuit.

Circle No. 141 on Reader Service Card

Pocket Volt-Ammeter

Product: High-current Model 1200 "Amprobe" volt-ammeter that measures up to 1200 amperes, yet can be carried in the coat pocket.

Manufacturer: Pyramid Instrument Corp., Lynbrook, N. Y.

Features: Snap-around type. Measures current instantly without being connected to the conductor. Thus readings can be taken without interrupting circuit or shutting down equipment. Newly-developed doughnut-type transformer eliminates for all practical purposes the factor of error due to position of conductor within probe jaws. Incorporates six ammeter ranges and three volt-meter ranges in one instrument. Voltage test leads are equipped with new safety-type plug which automatically insulates itself when removed from the meter. Probe jaws completely insulated down into the sockets to eliminate danger of shorts while working in crowded quarters. Wide angle, high visibility window makes it possible to take quick, accurate reading from practically any position, even in poor light.

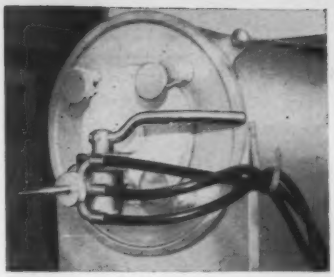
Circle No. 142 on Reader Service Card

Ice Cream Valve

Product: "Atkins Flavor Valve", a new type dispensing valve for continuous ice cream freezing machines.

Manufacturer: Midland Co., Minneapolis, Minn.

Features: Provides interchangeable selection of four continuous flavors from a single ice cream machine. Simple flavor selector switch enables operator to change flavors instantly. Large supply of syrup is contained in pressure pans located on or near the freezer itself. Syrup



is fed to the valve through a plastic food hose by a small air compressor. Valve injects a pencil-thick stream

for all water cooling -- use *Filtrine* -sell more condensing units

"DO" Orders are Vital!

For all Federal Agencies . . . All Armed Services . . . Filtrine products meet government specifications.

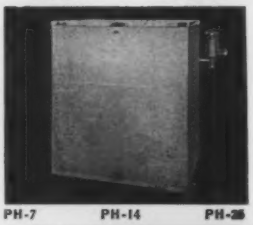
Promote your own condensing unit sales with Filtrine's 20-year-life construction . . . high capacity . . . Super Storage . . . more than 40 years' dependability.

MC-14-S MC-43-S MC-25-S MC-40-S

COOLERS FOR MESS HALLS — CAFETERIAS

Taste-Master

Sell your condensing unit with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.



PH-7 PH-14 PH-28

COOLERS FOR X-RAY & PHOTOGRAPHY

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.

Typical "Packaged" Circulating Chilled Water System

REMOTE COOLERS

Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.

Remote Model Coolers

Get our new—"How to Sell DO Jobs"—write Dept. RF2

Filtrine HIGH EFFICIENCY FILTRINE MANUFACTURING COMPANY · BROOKLYN 5 · N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 53 on Reader Service Card for more information

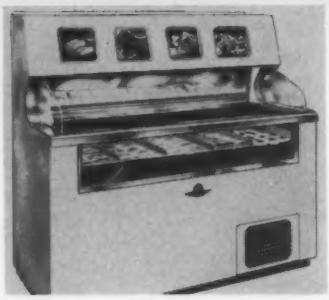
of pure syrup flavor into the center of a basic vanilla ice cream cone, creating in effect a "sundae-in-a-cone." Constructed of stainless steel and dairy metal. Engineered to fit most continuous freezers.

Circle No. 143 on Reader Service Card

Frozen Food Display

Product: Model SG-15 frozen food display cabinet.

Manufacturer: Ace Cabinet Co., New York, N.Y.



Features: New design and highly developed insulation techniques allows more storage area in less space. Stainless steel trim and top built flush to shell. Two doors are of double Thermopane, and are removable in rush hours without materially affecting operation. Superstructure, like cabinet, is one-piece all-welded steel, finished in double-baked white enamel. Four full-color three-dimensional pictures are back lighted for realism. Product strips and prices are furnished. Occupies only 65¼ x 30¼ inches of floor space but holds over 650 standard packages.

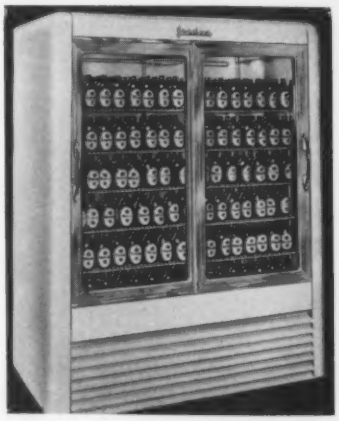
Circle No. 144 on Reader Service Card

Wall Case

Product: Model W4½-foot self-contained, sliding door wall case.

Manufacturer: Jordon Rerigerator Co., Inc., Philadelphia, Pa.

Features: Designed for use as wall display case or reach-in refrigerator in wide variety of applications, especially where space is limited and swinging doors would be inconvenient. Sliding doors have triple Thermopane glass in polished extruded aluminum frames. Equipped with ⅓-hp hermetically sealed condensing unit and exclusive "Air-Master" cooling system that provides rapid cooling with high humidity. Cooled air is recirculated, thus lessening refrigeration load and lowering operating costs. Capacity of approximately 20 cases of standard 12-ounce bottles. Measures 71¼ inches high, 53 inches wide, and 33 inches deep (including doors and hardware). Available in either white and stainless steel exterior.



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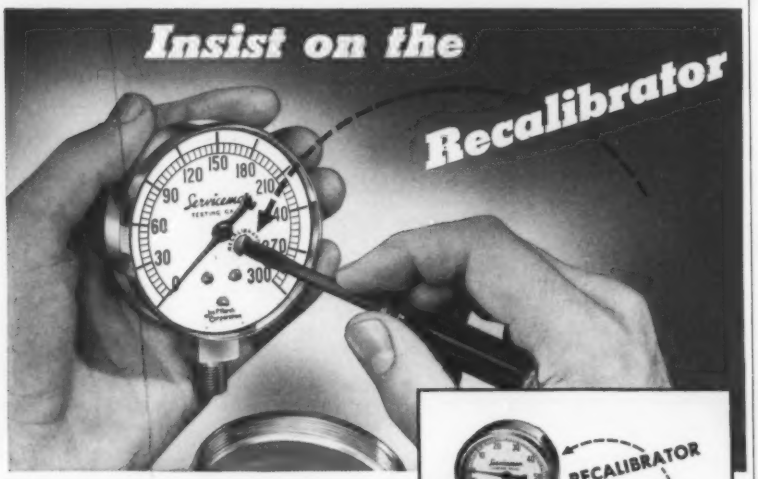

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Using a testing gauge that doesn't have a convenient means of keeping it accurate is like using a cutting tool without a handy means of keeping it sharp.

Like good cutting tools Marsh Gauges are "sharper" to begin with, but if you ever knock them out of adjustment you can "sharpen" them up in flash with the twist of a screwdriver.

That's why every true craftsman prefers Marsh testing instruments. When the pointer fails to return to zero just turn the Recalibrator screw until accuracy is restored. And remember: the Recalibrator is the one sound way to "sharpen" a gauge because it gets right down to the source of the error . . . corrects the relation of the bourdon tube to the movement.

Marsh testing gauges and thermometers are the only testing instruments that have the "Recalibrator". Use these tools that *are* right and can be *kept* right.

See your jobber

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Sales Affiliate of Jas. P. Marsh Corporation
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Easily removed knurled rings on the new, handsome Marsh testing gauge set gives quick access to the "Recalibrator." Here is the team of thorobreds for the serviceman who wants the best. (Dial size, 2½").

The "Recalibrator" is the finishing touch to this finer testing gauge with three extra color differentiated scales for sulphur dioxide, methyl chloride, and Freon. (Size, 2½").

The "Serviceman" thermometer also has the "Recalibrator." Note the 4-scale version of the Serviceman with color-differentiated pressure equivalents.

MARSH *Refrigeration Instruments*

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KEEP ABREAST OF THE *LATEST* IN AIR CONDITIONING AND REFRIGERATION EQUIPMENT

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Here's real help for designers of air conditioning and refrigeration systems. The B & G Condensers and Evaporators shown in the catalogs above are an assured way to make *better* installations . . . handy selection tables and simplified engineering procedures *save time in designing!*

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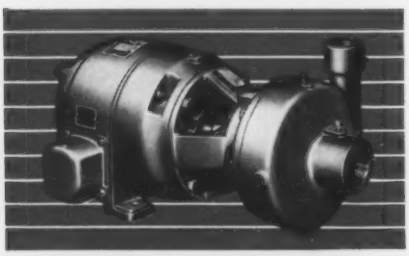
B & G Condensers and Evaporators are built according to U-69 Code of A.S.M.E. regulations and are certified by Hartford Steam Boiler and Inspection Service. Their many *plus* features are a warranty of that priceless asset—*customer satisfaction!*



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☆ **THOROUGHLY PROVEN IN USE**

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GOOD PROSPECTS . . .

Continued from page 45

major alteration and remodelling program. This structure, which was built in 1901, contains basement and first floor banking quarters and second and third floor rental office area.

Original plans for air conditioning of the entire structure called for a system with several package units, using extensive ductwork. However, an alternative preliminary layout was submitted for heating and air conditioning, using a central system for the banking area, and utilizing Modu-aire units for the office area, thereby eliminating a large part of the ductwork.

It was pointed out that the room unit system would provide more flexible control, eliminate unsightly ductwork, and isolate all compressor noise to one equipment room. The Bank Building & Equipment Corp. of America St. Louis, drew up the final mechanical plans incorporating the unit system, and the Accurate Refrigeration Co. was awarded the installation contract.

4-Zone Operation

The banking area is conditioned from a central fan unit, using a U.S. Air Co. special C-125 unit air conditioner, reversing the normal position of the blowers and coils to give a blow-through instead of the conventional pull-through. This enabled the system to operate in four zones, controlled by face and by-pass dampers.

Cooling is by direct expansion, using a 20-hp compressor unit. Summer humidity controls regulate the face and by-pass dampers and the amount of fresh air introduced into the system.

Hot water is the heating medium, passing through a coil in the unit's air handling section. Water temperature from the gas-fired boiler is regulated by an outside weather controller and a spray type humidifier controls winter humidity conditions.

The office area on the second and third floors is conditioned by 43 room units of various sizes. A 40-hp compressor and chiller provide cold water for summer cooling. A 60-ton evaporative condenser, with separate 20 and 40-ton circuits, was installed in the room to handle the two compressors.

The same Modu-aire control system utilized in the Elfgen Bldg. also is employed in the bank building, with continuous water circulation through the coils and thermostatically-operated blowers.

Where room units are located along outside walls, fresh air is introduced directly through wall boxes. Where units are located on inside walls, fresh air is ducted from the roof to the units. Stale air is exhausted to the outside through rest room stacks.

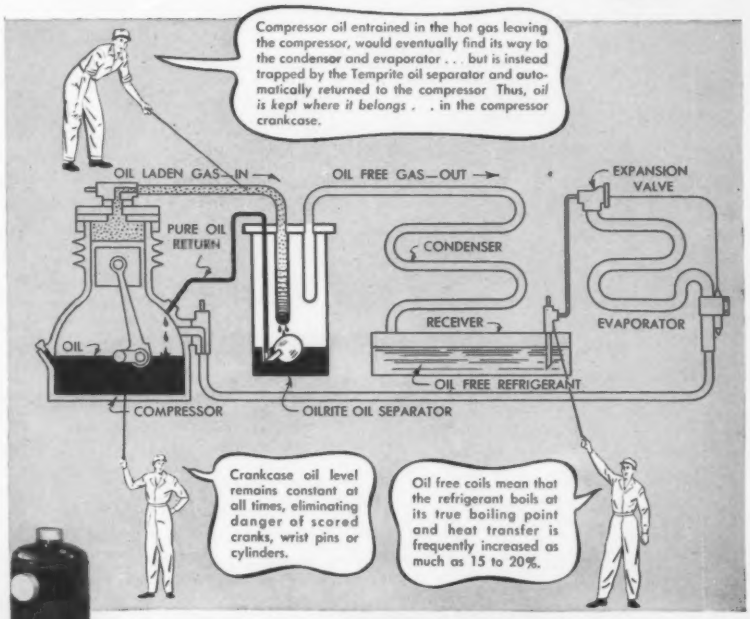
SERVICE PROFITS . . .

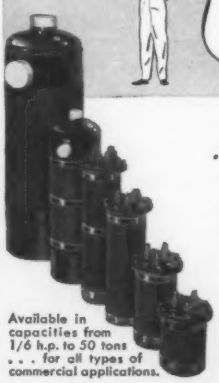
Continued from page 37

will be no completed circuit unless there is a ground, consequently no reading.

Concerning the sealed unit bugaboo—No. 5—this use alone would make the instrument well worth its cost. Snap the instrument around the winding leads—starting, then running. When both show a current flow into the unit far in excess of the nameplate rating and still won't run,

Keep oil where it belongs..


Compressor oil entrained in the hot gas leaving the compressor, would eventually find its way to the condensor and evaporator . . . but is instead trapped by the Temprite oil separator and automatically returned to the compressor Thus, oil is kept where it belongs . . in the compressor crankcase.
OIL LADEN GAS—IN
OIL FREE GAS—OUT
EXPANSION VALVE
PURE OIL RETURN
CONDENSER
RECEIVER
EVAPORATOR
OIL
OIL FREE REFRIGERANT
COMPRESSOR
OILRITE OIL SEPARATOR
Crankcase oil level remains constant at all times, eliminating danger of scored cranks, wrist pins or cylinders.
Oil free coils mean that the refrigerant boils at its true boiling point and heat transfer is frequently increased as much as 15 to 20%.



Available in capacities from 1/6 h.p. to 50 tons . . . for all types of commercial applications.

...with a TEMPRITE oil separator

Oil congeals quickly in low temperature coils, cutting down heat transfer and boosting operating time. Because of this common difficulty it is frequently impossible to reach desired temperatures. A Temprite Oil Separator overcomes this problem and permits the refrigerant to boil at its true boiling point. Temperatures from 4 to 7 degrees lower are easily reached at no increase in operating time. *Write now for particulars.*

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Originators of Instantaneous 80°–40° *Liquid Cooling Devices*

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you have a defective unit. Period. And to a refrigeration man a bad unit is a bad unit, whether motor or compressor.

The sixth job is obvious. We've already seen that with the instrument connected as a voltmeter, it's far superior to a test lamp.

On motor protection—Tasks No. 7 and 10—guesswork is again left by the wayside. When motor is running fully loaded, snap the jaws around a conductor and see what the amperage load really is. Select the next size fusetron or other protector. This generally provides some 10% overload protection, and this is as it should be.

We've already seen from the foregoing how a good snap-around volt-ammeter makes an excellent continuity tester—Task No. 8.

Immediately after a compressor has started, current consumption will be found to be high due to high back pressure causing the load to be heaviest. Normally as the back pressure decreases, so does current consumption. When this holds true, belt adjustment and bearings—No. 9—can be considered OK. After running a while, if the amperage reading begins to rise, check bearings by feel. Tight belts will invariably cause pulley-end bearing to heat. Dirty condensers will also cause increased amperage into the motor. In fact, many poor jobs which might have otherwise been left as OK, will be uncovered by abnormally high current flow to the motor.

This brings up Job 11. In normal operation, we can actually "see" the expansion valve open and close by observing changes in the amperage readings. As the valve opens a trifle and the load is increased, so is the motor load heavier and increased power is required to handle it. All such changes are readily apparent on the amperage scale.

How About Load Limits?

Blower motor nameplate ratings indicate maximum air delivery—Task No. 12. If current flow to the motor is less than stamped nameplate rating, pulley adjustment for greater air volume is permissible. A snap of the volt-ammeter tells you whether or not you can safely adjust the pulley larger to provide more air. Further, on checking a hot blower motor your amperage reading might indicate the necessity for decreasing the cfm in order to protect the motor.

Ever spend an hour on a system with an open control—No. 13—before you found which switch was open, which was closed? Your instrument can tell you almost instantly. Place the voltage leads on the switch (pressure control, thermostat) terminals. Granting there is juice to the system, if that switch is closed, no voltage will be read. If line voltage is read, that control switch is definitely open.

For the snap-around volt-ammeter user, it's a cinch to tell when it's safe to add another motor to a circuit—Job No. 14. Snap on your tool after making sure all motors on that circuit are running. Read direct the total amperage from the main line of the circuit and note the wire size. Any common wire data table will state the maximum safe current-carrying capacity of a given wire size.

From there on it's simple arithmetic. If the present total plus the known load of the proposed new system are within safe limits, it's OK to put it on. If the grand total is unsafe, don't put it on. Have a new circuit installed.

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says MR. ALEXANDER ORR, JR.
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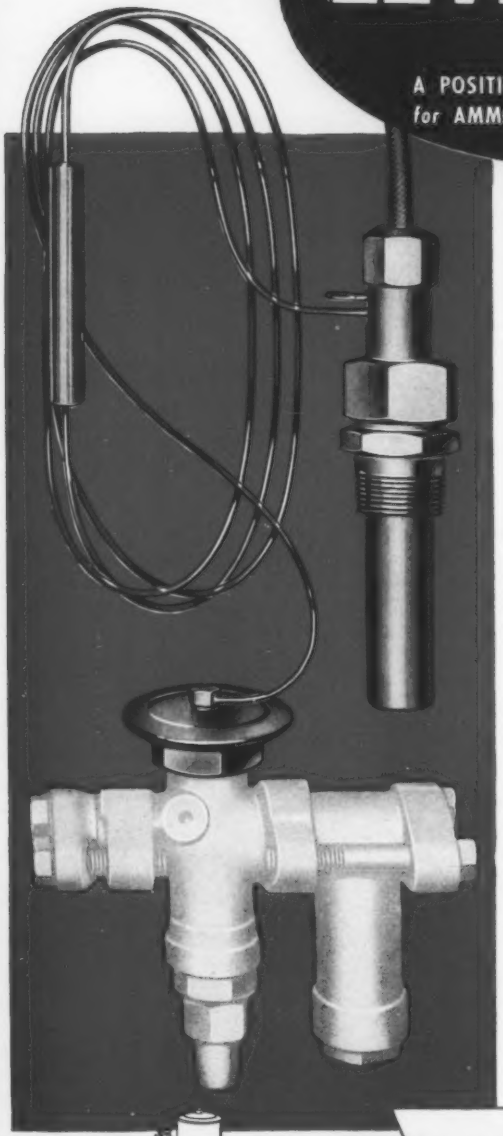


Sporlan LEVEL-MASTER control

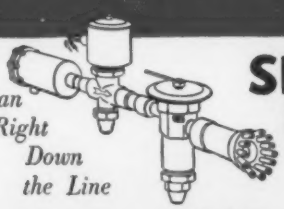
A POSITIVE LIQUID LEVEL CONTROL for AMMONIA, F-12 and F-22 with . . .

OUTSTANDING FEATURES

1. **Modulated Flow.** The Level-Master Control provides a modulated flow and maintains practically a static liquid level in the low side.
2. **No Moving Parts.** The insert bulb controlling the liquid level has no moving parts. Control does not operate through use of a mechanical float device of any kind.
3. **Simplified and Economical Installation.** The insert bulb is placed directly in the shell, accumulator or liquid leg for direct contact with refrigerant. Existing hand and float control systems can be easily and economically modernized and made automatic with the Level-Master Control.
4. **Not Affected by Turbulance.** Regardless of any turbulance which might occur in the low side, the effect on the Level-Master is merely that of striking a mean level and holding that level constant.
5. **Tight Closing.** Tight closing is assured during the off cycle when the heater element is off and liquid is in contact with insert bulb.
6. **No Current Flow Through Refrigerant.**
7. **Employs Proven Thermostatic Expansion Value Performance.** Not an electronic device.

The Level-Master Control is a standard Sporlan Thermostatic Expansion Valve equipped with the New Level-Master Element. The Level-Master Element consists of a conventional thermostatic power element, and a low wattage heater. The heater provides an artificial superheat to the thermostatic charge. As the liquid level drops, the heater temperature increases the pressure in the thermostatic element thereby opening the expansion valve. When the liquid level rises and makes contact with the bulb, the refrigerating effect overcomes the heater and the valve throttles.

Write Today **For Copy of Bulletin 60-15 and see why You should use a Sporlan Level-Master Control for YOUR flooded refrigeration systems.**



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THE HEATING SIDE OF AIR CONDITIONING

By Wm. Henry Knowlton

Types of Heating Systems

(See illustrated examples on facing page.)

THE purpose of this discussion will be to describe the various types of heating systems commonly used for human comfort in both residences and light commercial buildings.

Each will be evaluated in terms of *specific uses*, or applications, rather than accordance with claimed or inherent characteristics. It will be found that each type of system has great value when employed in the *right place*.

Terminology

Heating systems are usually divided into "convection systems," in which air is heated by a furnace, radiator, coil, or convector, and "radiant systems," which emit heat in radiant waves from a heated mass. Too often, "dry heat" or warm air systems are considered convection systems, and "wet heat" or hot water and steam systems are considered to be radiant systems.

In actual practice, almost all heating systems offer some combination of convection and radiant heating.

While a warm air furnace is considered to be a convection system, the stacks running up the walls of a room heat the plaster, and radiant heat waves are produced by the heated mass. And when register faces become warm, they too can produce radiant rays.

Conversely, when air moves over a floor heated by a radiant hot water system, convection results as the air becomes heated. The same is true of radiant baseboard equipment.

There is no point in praising (or dismissing) any type of heating simply because it is "wet," "dry," "convection," "radiant" or some combination thereof. As stated previously, all have their advantages when put to the right use.

Gravity Warm Air Heating

It all began when Benjamin Franklin moved the fireplace into the room, surrounded it with a sheet iron casing, and called it a "Franklin stove." Later an outer casing was added, and the entire apparatus moved to the basement, where today it is known as a "gravity warm air heating system" (see Figure 1).

Inner shells contain a fire where coal, oil, wood, or gas may be used. These are built of cast iron or steel, the later often found with ceramic tile protection.

In all cases the result is the same. Cold air flows down through return registers to the furnace, where it is heated and then permitted to rise through one or more "hot air" outlets. The reason for this action is that the heated air, having expanded, is lighter than the returning air. Temperature difference is usually found to be about 100° F.

Systems of this type have been found to be highly satisfactory in countless homes and small buildings. They are relatively inexpensive and easy to install. Applied in accordance with the Gravity Code of the National Warm Air Heating and Air Conditioning Association they give uniformly excellent results.

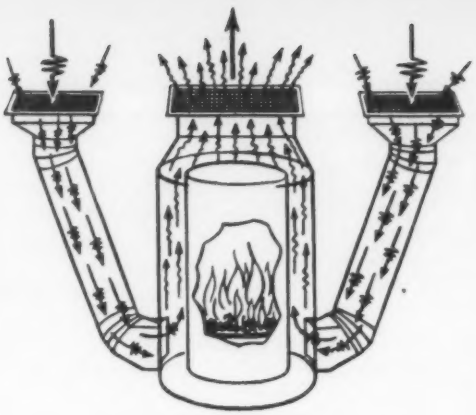
Applied to a large, rambling structure, however, no reasonable means can be found to distribute the heat. Similar distribution problems would be encountered in buildings without basements.

Winter Air Conditioning

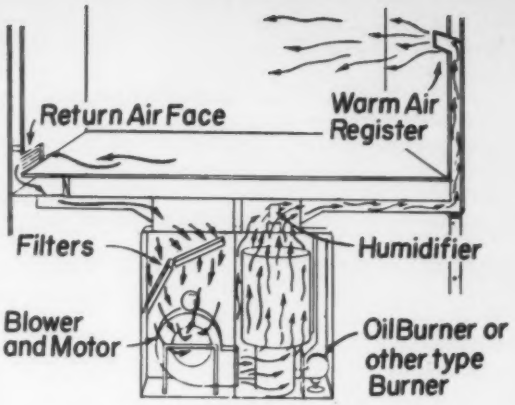
Since the advent of the magic term "air conditioning," forced air heating systems, or "winter air conditioning" as it is known today, have greatly increased in popularity (see Figure 2). In certain sections of the country they will be found in the majority of better residences and in a high percentage of small commercial buildings.

Basically, forced air heating systems operate exactly the same as the gravity system, except that some type of electric fan is employed to circulate the air throughout the structure. In certain cases, blade fans have been installed in the upper or bonnet section of the furnace, but more often these systems use a centrifugal blower

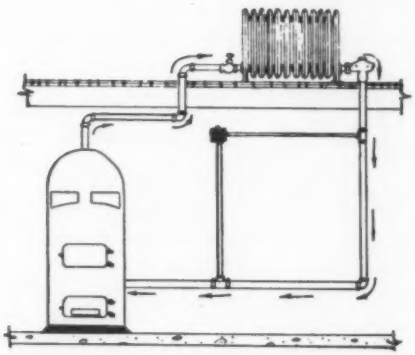
The right to use the word "air conditioning" has been



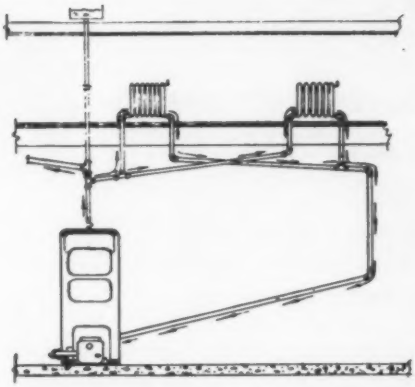
1. Gravity Warm Air Circulation



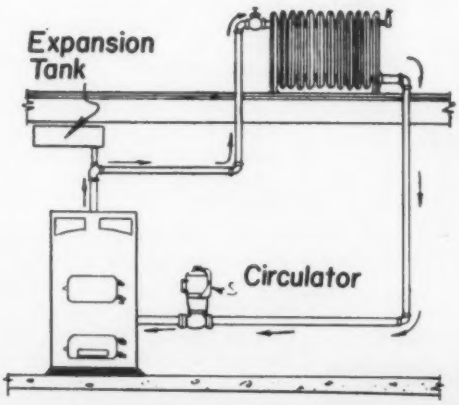
2. Winter Air Conditioning



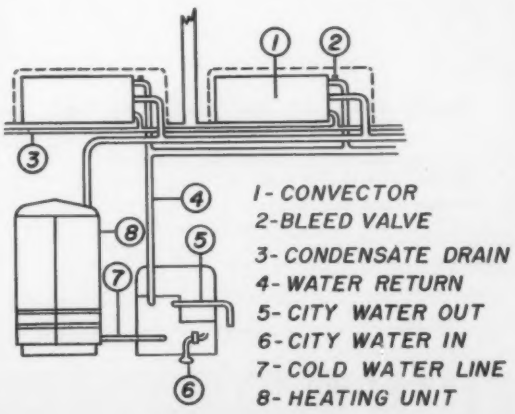
3. Two-Pipe Steam System



4. Gravity Hot Water



5. Forced Hot Water with Radiators


1 - CONVECTOR
2 - BLEED VALVE
3 - CONDENSATE DRAIN
4 - WATER RETURN
5 - CITY WATER OUT
6 - CITY WATER IN
7 - COLD WATER LINE
8 - HEATING UNIT

6. Forced Hot Water with Convectors

gained from the fact that many of these systems have filters to clean the air and humidifiers to raise the moisture content to the desired level. To broaden their "air conditioning" function, these systems may be equipped with electrostatic precipitators, cooling coils for summer air conditioning, and even germicidal lamps.

In forced air systems, air velocity is increased to a point where duct sizes may be reduced and the ducts run between joist spaces. Further, the systems are able to circulate air in a basementless building, and are widely used for this purpose.

Steam Heating

A steam heating system usually consists of a boiler and connecting pipes which carry steam to a radiator located in the heated space (see Figure 3).

At one time, prior to the development of forced hot water systems, steam was the only method of getting heat over great distances to radiators located in one, or perhaps a series of buildings. Even today, many "downtown" buildings in the larger cities are served with steam purchased from an underground system maintained and operated by a local utility.

Steam is widely used in air conditioning systems where it will produce a large volume of heat in a *relatively small* coil. As the condensing steam gives up latent heat to the air stream, it is rapidly replaced by the boiler.

Residential steam heating systems, however, have been modified by the use of valves which permit the generation of steam below atmospheric pressure. Known as "vacuum" systems, this type of equipment can be closely controlled to introduce the right amount of heat into each radiator, resulting in a high degree of human comfort.

Gravity Hot Water

Although the heating industry has been converting as many of these systems to "forced" hot water as practicable, a great many gravity hot water systems are still in use (see Figure 4).

Water heated in a boiler rises by natural forces, or its difference in weight, to radiators located in the various rooms. As the water cools, it is permitted to flow back to the boiler through a system of return pipes.

As the circulating force of this system is very slight, distance becomes a problem and hence the boiler should be centrally located, and not too far from the radiators it serves. Problems encountered with existing systems are usually solved by the use of a circulating pump and certain piping changes.

Forced Hot Water With Radiators

Modern hot water heating practice dictates that an electrically operated pump, or circulator be placed in the return line of a hot water system (see Figure 5).

Forced hot water, like forced warm air, has numerous advantages over gravity systems, in that smaller pipes may be used and the heated water may be carried over great distances. Patented systems of valves and orifices offered by several manufacturers make close control possible.

The system has great advantages in winter and spring when steam radi-

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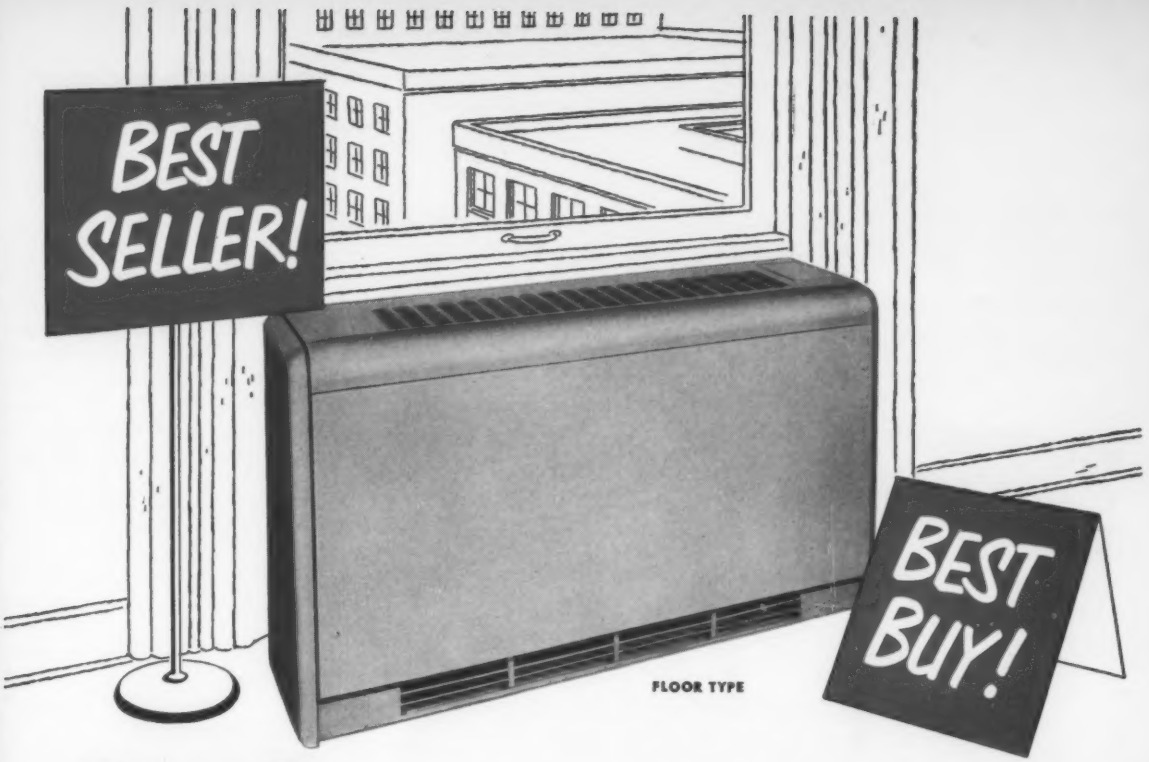

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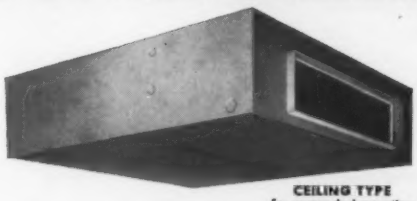
The Seasonmaker's year 'round performance actually "make the seasons come to you" . . . providing heated, and filtered air in winter; cooled, dehumidified, and filtered air in summer.



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AIR CONDITIONING • REFRIGERATION • HEATING

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ators would be either very hot or entirely cold. Again, it may be used in basementless structures, such as ranch houses, motels, shops, and factories.

For these reasons forced hot water systems have largely replaced steam and gravity hot water systems in residences and light commercial and industrial buildings.

Forced Hot Water With Convectors

In recent years many forced hot water systems have used convectors in place of radiators, for a number of excellent reasons. The convector consists of a power-driven fan-coil unit housed in an attractive casing that requires less space than the conventional radiator (see Figure 6).

These units may be individually controlled from thermostats or several may be operated in a group, as desired. As air is forced over the heated coil its response to temperature changes is very rapid and, as the coil is small, it will cool more quickly than a radiator, producing less overrun.

Convector systems are of greater interest here, however, because they may be converted to year-around air conditioning systems by the simple process of supplying each convector with chilled water in summer, and hot water in winter. When this is done it is, of course, necessary that each convector be equipped with a suitable drip pan and drain to dispose of water condensed from the air during the cooling cycle.

Chilled water may be supplied to the convectors from a "built up" cooling system, consisting of a compressor, liquid chiller, and pump, equipped with suitable controls. Such equipment may now be obtained as a "package" from certain manufacturers.

This type of comfort cooling system has many advantages in multiple unit buildings, such as motels, hotels, hospitals, and other structures where it is not desirable to return air to a central system.

The next article in this series will discuss radiant floor and ceiling systems, indirect systems including unit heating, combination or split systems, and the heat pump, or reverse cycle refrigeration system.

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Federal leader in sales, designers of modern refrigeration units, amazingly free from service . . . offers proof of acceptance in outstanding performance.

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✓ FOR SMALL STORES OR SUPER MARKETS.

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Waukesha, Wisconsin

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FEDERAL THE COMPLETE LINE FOR '52

- Self-Service Dairy-Produce and Meat Displays . . . Walk-ins . . . Reach-ins . . Freezers . . Service Cases . . . Spot Merchandisers . . . Beverage Coolers . . . Fruit Juice Merchandisers.
- Join the Federal Dealer Group, some very desirable territories still open for greater sales and profits.

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TAGS NOW IDENTIFY SYSTEMS USING "VISOLEAK"

Allin Mfg. Co. now offers a new service to the users of "Visoleak," the visible leak detector produced by this company.

With each 4-ounce plastic bottle of leak detecting fluid, two red tags are included. These tags are imprinted with the statement "This system is treated with Visoleak. If appearance of bleeding occurs at any point, notify your maintenance man immediately."

Below this is sufficient space for the serviceman to write in his name and telephone number. When the card is attached to any convenient part of the refrigeration unit, it can readily be seen and commands attention because of its red color.

Visoleak is a product which has been in use for the past 18 years. It is a chromatic dye completely homogenized with a high quality refrigeration oil. The dye intermixes with the oil in a refrigeration system and shows evidence of leaks by the tell-tale blood red spot it produces on coming through any leaking joint.

LIQUID CARBONIC WILL HOLD SERVICE MEETINGS

To better acquaint ice cream company service men with the installation, operation and servicing of its new line of soda fountain equipment and carbonators, Liquid Carbonic Corp. is holding a series of service meetings this spring in various cities. The schedule of meetings, as announced by C. Merryman, general service manager of the company's soda fountain division, is:

March 5, Kansas City, Mo., at Liquid Carbonic Corp., 1339 Liberty St.; March 5, Atlanta, at Atlanta Biltmore Hotel; March 7, Wichita, at Broadview Hotel; March 7, Birmingham, at Thomas Jefferson Hotel; March 10, Oklahoma City, at Oklahoma Biltmore Hotel; March 10, New Orleans, at Jung Hotel; March 12, Dallas, at Thomas Jefferson Hotel; March 14, Houston, at Rice Hotel; March 29, Buffalo, at Alex Miller Co., 562 Broadway.

April 1, Rochester, at Cable Wiedemer, Inc., 138 State St.; April 2, Syracuse, at Smith Restaurant Supply Co., 500 Erie Blvd. E.; April 4, Albany, at Lewis Equipment Co., 450 N. Pearl St.; April 7, New York City, at Universal Soda Fountain Eqpt. Co., 442 E. 149th; April 9, Boston, at Soda Fountains, Inc., 136 Broadway; April 11, Philadelphia, at J. M. Holmwood & Co., 5 E. Montgomery Ave., Bala Cynwyd; April 14, Baltimore, at Liquid Carbonic Corp., 1300 Guilford Ave.; April 16, Richmond, at Owens & Minor Drug Co., 1000 E. Cary St.

Meetings will begin at 7:30 p.m., and all ice cream companies and service men are invited to attend the meeting nearest them.

PASS-THROUGH CABINETS SPEED FOOD HANDLING

Four special pass-through cabinets, two of them refrigerated and the other two heated, are one of the new food-serving features of the new employee cafeteria opened recently by Westinghouse Electric Corp. at its East Pittsburgh plant.

The cafeteria's dining area seats 750 persons and is divided into three individually decorated rooms, each of which is air conditioned as well.

Food prepared in the cafeteria kitchen is placed in one side of the cabinets, and taken out the other.

COOLERS TO COLLEGE

COOL WATER for Behrend Center, Pennsylvania State College, Erie, Pa., was assured by a recent gift of two of its Lectrick-Ice units to the center by Uniflow Mfg. Co. Chester A. Kuebler, president of Uniflow, is shown presenting one of two copper plaques to T. Reed Ferguson, administrative head of the Center.

NEW ALUMINUM ALLOY WELDING RODS MARKETED

An important advance in the art of welding aluminum by various methods of arc welding (including inert gas) and by oxy-acetelyne welding is claimed by All-State Welding Alloys Co., Inc., White Plains, N. Y., with the introduction of two new high purity bare rods.

The new rods are said to be equally applicable with a.c. or d.c. electric welding equipment and oxy-acetelyne welding equipment. They are identified as All-State X-43S aluminum rod meeting Government Specification QQ-R-56 Type 1 Class FS-RAL-43, and All-State X-2 S aluminum rod meeting Government Specification QQ-R-56 Type 1 Class FS-RAL2. These rods are designed for all work requiring 43S or 2S aluminum wire applied with inert gas, normal arc or torch. Standard diameters are $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$"; standard length is 36" and standard package is 50 lbs. Both rods are also packaged in coil form, and both alloys are available as drawn wire.

SWEDEN FREEZER OFFERS 7 NEW MODELS

Development of seven new models of fountain freezers for manufacture and national distribution in 1952 is announced by Sweden Freezer Mfg. Co., including a new "Frigidmixer," M1-169A3, which is a self-contained, air-cooled, table model for making complete milk shakes and malts in the machine.

For the large-volume milk shake production, the firm also offers the M1-190B1, a lighter horsepower version of the popular M1-190 Frigidmixer introduced last year.

Designed especially to meet large production requirements is the 1-200, a heavy-duty, automatic continuous freezer, while in contrast to it is the 1-93A3, a one-gallon, air-cooled, table model, batch freezer that features plug-in operation and automatic controls. For making hard ice cream there is the new 1-98, a five-gallon batch freezer.

Another automatic continuous model is the 1-169A3, a self-contained, air-cooled freezer with simplified switch control that serves a curl-top product. A five-gallon batch freezer with automatic controls is the 1-99, designed for light-duty, soft ice cream production.

Introduction of its new models brings to a total of eighteen the number of freezers made by the Sweden company in order to meet the specific needs of any size or type of establishment.

REMINGTON HAS FULL LINE OF DEALER HELPS

Remington Air Conditioning Division has released a new dealer promotional package covering its 1952 line of window and console type air conditioners. The kit includes specification sheets on the complete line, a new full color "complete line" folder, material for two distinct direct mail promotion campaigns, and an ad mat catalog offering mats for dealers' cooperative advertising.

One of the direct-mail campaigns includes a large two-color broadside and three return-mailer follow-up cards, and is designed for distributor use in obtaining dealers. The second, for dealer-to-consumer use, consists of a two-color self-mailer and three return-mailer follow-up cards.

Supplementing the direct-mail material is an envelope stuffer and a single sheet flyer, both in full color, designed principally for use with invoices and monthly statements. A self-mailer and brochure for prospects in the industrial field also is included in the kit, as are stuffers for motel, hotel, doctor and dentist prospects.

ACRMA-REMA SUMMARY OF COMPRESSOR SHIPMENTS

(Number Manufactured *and* Sold for Refrigerants Other Than Ammonia)

Horsepower	SEALED-TYPE (HERMETIC OR CLOSED) FORM A					OPEN-TYPE, AIR-COOLED FORM B					OPEN-TYPE, WATER-COOLED FORM C				
	Continental U. S.			Export	Grand Total	Continental U. S.			Export	Grand Total	Continental U. S.			Export	Grand Total
	Mfrs. (N)	Non-Mfrs. (O)	Total (P)	(Q)	(R)	Mfrs. (N)	Non-Mfrs. (O)	Total (P)	(Q)	(R)	Mfrs. (N)	Non-Mfrs. (O)	Total (P)	(Q)	(R)
Second Quarter, 1951	**SOLD IN UNITARY (END-USE) PRODUCTS**														
1/6 & Less	xxx	xxx	54,465	1,822	56,287	xxx	xxx	*	*	*	xxx	xxx			
1/4	xxx	xxx				xxx	xxx	*	*	*	xxx	xxx			
1/3	xxx	xxx				xxx	xxx	*	*	*	xxx	xxx			
1/2	xxx	xxx				xxx	xxx	*		*	xxx	xxx			
3/4	xxx	xxx				xxx	xxx				xxx	xxx			
1	xxx	xxx	40,795	2,158	46,767	xxx	xxx				xxx	xxx			
1 1/2	xxx	xxx				xxx	xxx				xxx	xxx			
2	xxx	xxx				xxx	xxx				xxx	xxx	493		
3	xxx	xxx				xxx	xxx				xxx	xxx	671	274	3,432
5	xxx	xxx	3,814			xxx	xxx	*		*	xxx	xxx	1,994		
Sub-Total	xxx	xxx	99,074	3,980	103,054	xxx	xxx	*	*	*	xxx	xxx	3,158	274	3,432
	SOLD AS COMPRESSOR BODIES, COMPRESSORS, OR CONDENSING UNITS														
1/6 & Less	166,996	2,119	283,819			1,698	2,286	3,984	6,990	10,974		175	1,171		1,298
1/4	114,704														
1/3	92,541	1,453	93,994			1,841	2,688	4,529	2,666	7,195	92			127	
1/2						1,266	4,042	5,308	3,353	8,661		904			
3/4				33,869	443,337	728	2,242	2,970	1,206	4,176	108	692	800	72	872
1						1,738	1,746	3,484	669	4,153	805	1,087	1,892	403	2,295
1 1/2	29,716	1,939	31,655			278	1,464	1,742	439	2,181	278	829	2,009	62	2,154
2						383	1,534	1,917	559	2,476		902		83	
3						75	1,398	1,473	315	1,788	370	1208	1,578	170	1,748
5						—					277	717	994	903	1,897
Sub-Total	403,957	5,511	409,468	33,869	443,337	8,007	17,400	25,407	16,197	41,604	1,930	6,514	8,444	1,820	10,264
Grand Total	xxx	xxx	508,542	37,849	546,391	xxx	xxx	*	*	*	xxx	xxx	11,602	2,094	13,696

REPORT FORMS: The complete set of sales reports being undertaken jointly by ACRMA and REMA includes the following: SHIPMENTS OF COMPRESSORS (For Refrigerants other than Ammonia): Form A—Sealed-type (hermetic or closed); Form B—Open-type, air-cooled; Form C—Open-type, water-cooled. Please use one or more of these report forms, depending upon the type of equipment manufactured by your company.
BASIS FOR REPORTING: In order to avoid duplication of reporting, sales should be reported only by the company which manufactured the compressor body. A compressor body is defined as the basic compressor casting.
Compressor bodies which may be used with more than one size of motor should be reported on the basis of your best estimate of the motor horsepower to which it will be connected. If you are unable to classify the end-use for the units sold to other manufacturers, report them under "Other Classifications". A reasonable assumption of the end-use is acceptable.
"SOLD IN UNITARY (END-USE) PRODUCTS": In the upper section of the form, report in Columns (b) through (m) the number of compressor bodies your company manufactured and sold in unitary (enduse) products for use within the Continental United States. For the purpose of this report, a condensing unit is not considered as a "unitary (enduse) product". The total of Columns (b) through (m) should be listed in Column (p).
"SOLD AS COMPRESSOR BODIES, COMPRESSORS, OR CONDENSING UNITS": In the lower section of the form, report in Columns (b) through (m) the number of compressor bodies your company manufactured and sold to other manufacturers as separate compressor bodies, compressors, or condensing units for use within the Continental United States. The total of Columns (b) through (m) should be listed in Column (n). Column (o) should be used to report compressor bodies manufactured and sold by your company to non-manufacturers (distributors, jobbers, dealers, retail customers, etc.) for use within the Continental United States.
NOTE: Columns (b) through (m) are listed only on the semiannual report forms.
REPORTING COMPANIES: Airtemp Division, Chrysler Corporation; Baker Refrigeration Corporation; Brunner Manufacturing Company; Carrier Corporation; Curtis Refrigerating Machine Division of Curtis Manufacturing Company; Frigidaire Division, General Motors Corporation; General Electric Company; General Machine and Manufacturing Company; Kelvinator Division, Nash-Kelvinator Corporation; Lehigh Manufacturing Company, Division of Lehigh Foundries, Inc.; Lynch Corporation; Mills Industries, Incorporated; Norge Division, Borg-Warner Corporation; Servel, Incorporated; Tecumseh Products Company; Universal Cooler Division, Tecumseh Products Company; Westinghouse Electric Corporation (Springfield and Hyde Park (Boston, Mass.); Worthington Pump and Machinery Corporation; York Corporation.

HIGH PRESSURE AIR SYSTEMS NEW TREND

Increasing popularity of high pressure (high velocity) air distribution systems should bring about a notable change in the design of air conditioning systems during the next 10 or 15 years, according to R. D. Tutt, chief engineer of Tuttle & Bailey, Inc.

Speaking at a recent meeting of the Illinois chapter of ASHVE, Tutt said that the primary interest in the newer type distribution system is economic and is centered on considerations of relative ductwork costs, costs of furring ceilings, and in some cases the possibilities of reducing building heights by the equivalent of one or more floors, the space savings being accomplished by reductions in duct space requirements.

Tutt described the various types of systems as follows: low velocity—up to 2500 fpm in mains and up to 1500 fpm in branches; medium pressure—up to 4000 fpm in mains and up to 2500 fpm in branches with a maximum static pressure of 3 inches; high pressure—up to 6000 or 7000 fpm in the mains and up to 3000 or 4000 in the branches with a maximum static pressure of 6 to 8 inches of water.

It was emphasized that to obtain fully the value of a high pressure system, the return side of the system must be handled in the same manner. The speaker warned that high velocities are not the answer to all air distribution systems, and said that each job should be considered and analyzed as an individual problem.

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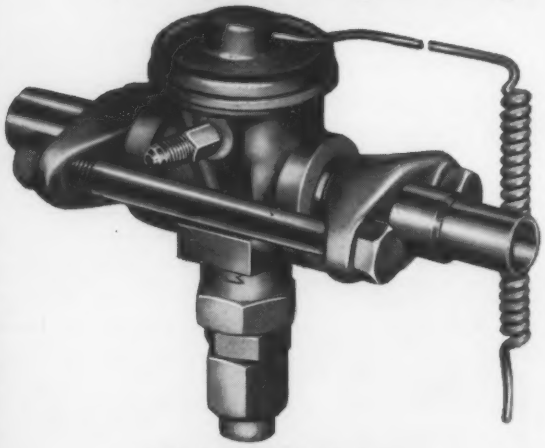

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Yes, now you can simplify costly, unnecessary time consuming inventory problems—streamline your stock and your sales with DETROIT 786, 787 and 788 large capacity thermostatic expansion valves. That's because the 786, 787 and 788, with capacities from 2 to 25 tons Freon-12, are designed for quick, convenient handling. All you stock are the basic valves themselves. The need for numerous special connection assemblies is completely eliminated because the valve inlet and outlet connections can be readily altered to larger or smaller sizes by the use of standard reducing couplings. What's more, these valves, all equipped with external equalizer connections, are designed with in-line connections for easy installation and capacities may be quickly and conveniently changed on the job. But why not find out for yourself—look them over and you'll agree—for ease of ordering, stocking, selling and installing, smooth performing DETROIT Large Capacity Expansion Valves are truly standouts from every standpoint!

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Speedier Handling

of meats and perishable foods with
JAMISON Series "50" Double Doors

● Today's *busy* tempo in the vast handling and storage of foods calls for speed and efficiency. There's no time to be lost, no labor to be lost. Jamison Double Doors fill the bill because they're twice as wide and can handle twice as much traffic in moving stock in and out of the refrigerated space.

These 2 views of Jamison Double Doors in use at Illinois Packing Company portray space and speed. Notice the inside metal kickplate—the handy bump-open bar. Here's *your door* for extra years of trouble-free, efficient operation. Jamison Cold Storage Door Company, Hagerstown, Md., U.S.A.

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Three-deck combination produce case refrigerated middle deck for produce fruit display on top deck; potato-onion bins below. Complete "superette" produce department in one case.

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Turns unprofitable "under-counter" space into a money-maker. Produces impulse sales at check-out time. Users report up to 200% increase in frozen food sales.

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CONTRACTORS

NEWS • ACTIVITIES • PLANS

RACCA Urges Architects to Get Separate Bids on Cooling Jobs

FOLLOWING a resolution by RACCA's board of directors that too many professional architects and mechanical engineers are of the erroneous belief that refrigeration and air conditioning is a subcontracting job, the national office of the Refrigeration and Air Conditioning Contractors Association has begun an active campaign to erase this false impression.

Nathan Edelstein, executive vice president of RACCA, has released the texts of letters to the American Institute of Architects in Washington, and the American Society of Mechanical Engineers, with offices in New York City, urging them to revise their "codes of bidding procedure" so that refrigeration and air conditioning in all its phases might be handled as a completely separate item in the invitation to bids.

Noting that members of RACCA engage in work consisting of the installation of refrigeration and air conditioning equipment of different sizes, running from fractional horsepower into the hundreds of tons—from a complete building or warehouse to a frozen-food locker, Edelstein declared that oftentimes the refrigeration and air conditioning contractor is more suitable for a particular job than any other contractor.

"Many times," he wrote, "when our members worked as sub-contractors, they have discovered difficulties which arose because the main contractor, a plumber or steamfitter, was not aware of the special problems that refrigeration and air conditioning often poses. And so the job was completed improperly, or cost more money than anticipated, or took more time to accomplish.

"RACCA is trying to change the thinking of architects that installation of refrigeration or air conditioning equipment is an operation of plumbing, steamfitting or perhaps sheet metal work," Edelstein concluded.

"There are instances in which a particular refrigeration contractor, financially and technically able, actually submitted a low bid for the installation of such equipment and lost the bid due to the fact that he was acting as a sub-bidder under a plumbing or general contractor who was himself too high."

FELDMAN TO REPRESENT RACCA ON ASA GROUP

The Refrigeration and Air Conditioning Contractors Association, Inc., has joined with the American Standards Association Sectional Committee Y-53 on refrigeration nomenclature, aim of which is to standardize graphical symbols, abbreviations and letter symbols as they apply to refrigeration.

RACCA's representative on the ASA committee will be Nathan R. Feldman, president and chief engineer of Vent-O-Air Corp., Brooklyn, N. Y. Feldman, who has an M. E. from New York University and a master's degree in mechanical engineering from the University of Pennsylvania, formerly was head of the engineering staff of Philco Corp.'s refrigeration division. His present company, which he operates in partnership with George Rothenberg, is a Carrier dealer in the New York metropolitan area.

Other organizations having representation on the ASA nomenclature committee (there are some 20 in all) include ACRMA, ASRE, RSES and REWA. Copies of a proposed American Standards of Refrigeration Nomenclature for Text and Drawings, covering graphical symbols, abbreviations, and letter symbols, are available to all contractors who are interested, by writing the national office of RACCA, 154 Nassau St., New York 38, N. Y.

PUBLICITY DEPT. SERVICE ESTABLISHED BY RACCA

A special public relations and publicity department, recently established by the Refrigeration and Air Conditioning Contractors Association, has available a variety of subject material for use by local contractor associations, RACCA headquarters has announced.

Idea behind the public relations department, RACCA says, is to emphasize the importance of refrigeration and air conditioning to the general public, to distribute bulletins of importance to RACCA members, and to continue liaison between RACCA and other trade associations in the industry.

Local contractors and contractor groups are invited to call upon RACCA's public relations and publicity services for material they believe will be helpful to them in their own communities.

PREBENSEN IS ELECTED AIR COMFORT PRESIDENT

The board of directors of Air Comfort Corp., Chicago contractor firm, has announced the election of H. J. Prebensen as president. Prebensen succeeds H. E. Wheeler, former president, who retired from business in December of last year and will make his residence in Jamaica, B. W. I.

H. J. Prebensen

Dick Roddewig, a director of the company and its tax consultant for the past 10 years, was appointed vice president and treasurer.

D. A. Forberg was appointed vice president in charge of engineering, contracting and servicing operations. Forberg has been chief engineer of Air Comfort Corp. since 1941.

Prebensen has been associated with Air Comfort Corp. as vice president

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900 TON CENTRIFUGAL REFRIGERATING COMPRESSOR

with 900 H. P. motor and controls for Air Conditioning

ASK FOR COMPLETE DESCRIPTION

This equipment was delivered for an air-conditioning project that has been deferred. The machinery is now and still packed in original cases.

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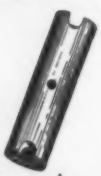

DELAVAN duplicates factory design exactly. DELAVAN pins are manufactured to excel in quality.

Write for Catalog 50B

DELAVAN MANUFACTURING CO.
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and general manager since the company's inception in 1934. During World War II, as lieutenant colonel, he served as chief of the industrial division of the Chicago ordnance district. Prior to his association with Air Comfort Corp., he was a member of the firm of V. D. Simons, Inc., industrial consulting engineers.

Air Comfort has been identified with Carrier Air Conditioning in metropolitan Chicago since 1934, and during that period has furnished many important air conditioning installations for industrial and commercial buildings in Illinois and Indiana. Currently, the company is executing sizeable contracts for industrial process air conditioning for a number of large defense contractors.

RACCA OFFICIAL CONFERS ON CONSTRUCTION CURBS

In line with RACCA's policy of keeping in touch with the national picture as it concerns refrigeration and air conditioning, Nathan Edelstein, executive vice president of the contractors' association, attended the meeting of the construction industry advisory council in Washington, D. C., on Feb. 12.

Purpose of the meeting was to get an industry-wide evaluation on how defense controls are operating, and what effect such controls are having on the availability of steel, copper and aluminum for defense and non-defense use in construction.

It has been reported that since copper tubing may not be used for certain construction jobs (water-waste lines) it has been very difficult to complete such jobs. Although steel tubing and pipe are allowed, such steel cannot be obtained because of current shortages.

The meeting provided an opportunity to make such suggestions as seemed desirable from the standpoint of the refrigeration and air conditioning contractor who does construction work.

To get the opinions of RACCA members, the national office recently sent out questionnaires asking for members' views as to how defense controls have affected their businesses insofar as the three controlled materials — steel, copper and aluminum — are concerned.

All contractor firms, whether or not they are members of RACCA, have been invited to submit their opinions on this subject, since the association seeks to represent the viewpoint of as many individuals and firms in the contractor segment of the industry as possible.

MIAMI IS SCENE OF RACCA BOARD MEETING

The first quarterly meeting of the board of directors of the Refrigeration and Air Conditioning Contractors Association was held Feb. 22 and 23 at the Hotel Columbus, Miami, Fla., marking the first time that a RACCA board meeting has been held in that city. The next quarterly board meeting is scheduled for St. Paul or Minneapolis, in June.

Among subjects given important consideration at the meeting was the status of RACCA's petition to the Federal Trade Commission for the establishment of trade practice rules for the industry, particularly as they affect the merchandising of equipment by dairies and ice cream companies.

Discussion also was held on an intensive membership campaign, to cover two additional new types of memberships. One is for those contractors who do less than $50,000 gross annual business, and recognizes that there are many small contractors in rural and small-community areas who are a vital factor in the industry, and who merit special consideration as far as membership is concerned.

The second new membership category is for so-called "sustaining" members—for those who are not contractors, but who have an allied interest in the industry. Art Palen, first vice president, is chairman of RACCA's 1952 membership campaign.

Consideration also was to be given to increasing the number of board officers by 50% because of the association's growing membership. This would insure a more representative attendance of board members at succeeding meetings.

ANGUS HEADS DALLAS CONTRACTOR ASSOCIATION

Frank Angus was installed as new president of the Air Conditioning & Refrigeration Contractors Association of Dallas at a recent meeting. Other new officers are Henry Cohn, vice president, and Robert Brown, secretary.

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Looking for something between 50 and 220 cubic feet per minute? Want a smooth running job that'll require a minimum of attention? Then check these husky, good-looking Redmond Blowers that have been used by the millions in world famous products of leading manufacturers. Your distributor of Redmond Micromotors and Blowers will help you select the right one.

THE BIG NAME IN SMALL MOTORS

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SEE YOUR WHOLESALER, or write Redmond Distributors, Inc.
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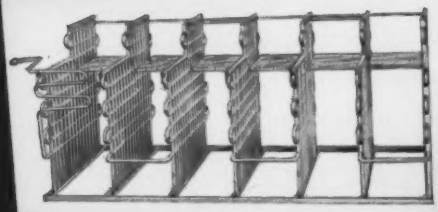
IDEAL
Speed-Freeze Products
with the famous
Arctic Fin Evaporator



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PRITCHARD
Series "PB"
COTOPACK*
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New, better-than-ever-quality Pritchard Series "PB" Cooling Towers provide lower cost indoor or outdoor cooling service on air conditioning and refrigeration installations of relatively small capacities (6 to 20 tons). Here's why... Centrifugal blower is corrosion-proof coated and dynamically balanced for quiet operation, high capacity, low horsepower, longer life. All joints are welded watertight. Gravity-type distribution is self-cleaning. Motor totally enclosed with belt tension adjustment. Only highest quality materials . . . steel frame and sheathing and long-life Redwood decking. Shipped completely assembled. Easily installed.

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. . . with new and improved TEXACO CAPELLA OIL (WAXFREE)

Distributors, Dealers and Service Engineers all enjoy bigger business with the new *Texaco Capella Oil (Waxfree).* This highly-refined refrigerating oil wins the praises of users everywhere because it assures freedom from wax precipitation *even at temperatures as low as minus 100°F.*

Texaco Capella Oil (Waxfree) has extremely low floc and haze temperatures, *plus* outstanding stability, purity and resistance to oxidation. It has low pour test, is moisture-free and will not react with refrigerants.

There is a complete line of *Texaco Capella Oils (Waxfree)* to assure greater efficiency for every size and type compressor. Available in refinery-sealed 55-gallon drums, 5-gallon, 1-gallon and 1-quart cans.

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TEXACO Capella Oils (Waxfree)
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TUNE IN . . . TEXACO STAR THEATER starring **MILTON BERLE** on television every Tuesday night. **METROPOLITAN OPERA** radio broadcasts every Saturday afternoon.

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THE PRACTICAL REFRIGERATION APPLICATIONS MANUAL

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. The most interesting ones will be published in these columns. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

PROBLEM

"I HAVE a cinder block building 40 feet long, 24 feet wide, and 8 feet high, with a cement floor 4 inches thick. In one end of this building I wish to install a walk-in cooler with inside dimensions of 13 x 13 x 8 feet, designed to hold an average temperature of zero F.

"I plan to use 6-inch cork board sealed with pitch as insulation on all six sides of the cooler. Two sides of the walk-in will be built out of yellow hollow tile, and the inside will be lined with same.

"Sharp freeze plates are to be used as the refrigerating medium.

"I have figured roughly that this walk-in, with an interior capacity of 1352 cu. ft., will have a product load and leakage load of 192,000 Btu, plus a usage load for 800 pounds of meat of 140,000 Btu, or anoverall heat load of 332,000 Btu.

"Can you tell me how far off I am on this rough estimate? I figure I will need a 3-hp compressor to handle this load.

"Also, can you suggest the name of a firm from which I could obtain a set of plans and list of materials needed for this job as outlined, incorporating a hot gas defrosting system?"

SOLUTION

THE total load figure which you calculate of 332,000 Btu per 24 hours is just about right and checks closely with our own figures for load requirements. We assume that maximum temperature would be approximately 90 F in the hottest months and that the air outside the cooler would equal this temperature at such periods.

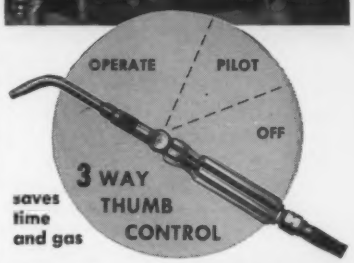
A 3-hp water-cooled Freon condensing unit at —20 F average suction gas temperature has a capacity of approximately 14,000 Btu per hour. With zero F inside temperature and a 20-degree t.d., approximately nine plates 120 x 24 inches would be required, handling roughly 14,400 Btu, which closely balances the 3-hp unit capacity. However, under maximum weather and load conditions the equipment probably would run continuously, possibly resulting in a temperature rise inside the cooler.

Operating a 3-hp water-cooled Freon condensing unit at —10 F average suction gas temperature you would have a capacity of approximately 19,000 Btu per hour, with a maximum operation of around 17½ hours out of 24 hours. However, the t.d. then would be reduced to 10 degrees, requiring the use of eighteen plates 120 x 24 inches inside the cooler. This would be the most satisfactory layout and should provide an installation with adequate capacity to handle the load. There is little or no leeway provided, however, for future expansion of load capacity.

A 5-hp water-cooled Freon condensing unit operating at —20 F average suction gas temperature has a capacity of around 21,200 Btu per hour with fourteen 120 x 24-inch plates at 20 degrees t.d. With this equipment you should be able to handle this entire load in 16 hours under maximum conditions and have reserve capacity for future load expansion. Only the installation of a few additional plates would be required for an increased load if it should later be needed.

We would suggest that you contact your wholesaler of refrigeration parts and supplies regarding the equipment and materials you will need for this installation. Also you can talk to your wholesaler regarding a set of plans for this job. He will undoubtedly be able to work closely with you and provide the assistance you need.

NEW! BETTER!
Sod-R-Braze
ACETYLENE-AIR TORCH
with LEAK DETECTOR



With a few twists of the wrist, attach the sensitive NCG Leak Detector to the new Sod-R-Braze torch handle and you're ready to locate refrigerant leaks with pinpoint accuracy. With the same ease, unscrew the Detector, attach a tip and you've got a soldering and brazing torch that beats any you ever used. Outfit, including "NB" cylinder with 40 cu. ft. of high-heat acetylene gas, is easily portable, particularly so with NCG's new "Carryall"

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FROST HEAVAGE . . .

Continued from page 47

will necessitate a slow process of thawing the ground with steam, hot water, or warm oil in order to drive the well points as deep as necessary to remove all frost from below the existing foundations.

Depending on the amount of heavage and cracking of the floor, it may or may not be necessary to replace the floor construction. If the frost accumulation has been sufficient to raise the entire building, in all probability it will be necessary to install a new subfloor, ventilation system, insulation, and finished wearing floor before the room can be returned to operation.

Due to plant layout and surrounding conditions it may be impossible to allow sufficient space for through ventilation when rebuilding a damaged freezer-room floor. In this case, after the existing floor construction has been removed, a system of wrought-iron pipe grids may be applied on a crushed stone foundation *(see "Cure" diagram B on page 46.)* This piping is similar in appearance to a radiant heating installation, and warm water or fuel oil is circulated through the pipe grids.

The water or oil is usually heated to the proper temperature in a heat exchanger that is connected to the plant steam lines or the condenser. After connections are welded and tested, a concrete subfloor is poured over the grid system. This serves as a foundation for insulation and the finished concrete wearing floor.

Each Job Tailored

Although this system has proved to be effective, there is no standard layout available for spacing the pipe grids. Every job has to be individually designed. By closer spacing of the pipes, a greater heat output per square foot of floor area is obtained.

The flow of liquid in the pipes must also be calculated for every installation, because this directly affects the spacing and bands of the grid system. In addition, it is usually common practice to install temperature recording systems in the floor area as a guide to operating efficiency.

All of the alternatives involved in dealing with frost formation, once it has occurred, are costly. Not only the initial installation costs but the maintenance costs as well are substantial.

It is far more practical, whenever possible, to apply these solutions as preventive measures at the time the freezer facilities are being designed and built.

One highly recommended procedure is to install an adequate ventilation system at the time the freezer is being built. This system *(refer again to "Prevention" diagram)* consists of air ducts or sewer tile spaced at regular intervals across the small dimension of the room under the subfloor of the freezer. As shown in the diagram, the ducts or tile are extended above grade on both sides of the room to permit natural circulation of air under the subfloor at all times.

Such a system of ventilation, specified before the freezer is erected, offers an inexpensive form of insurance against the possibility of frost heavage in any case where it is necessary to operate a room at sub-zero temperatures on or below grade level.

Material for this article was supplied through courtesy of Armstrong Cork Co.

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"DISPLAY ALL" sliding glass panels combine beauty, utility and sanitation in open top case to cutting room partitions. These smart new sliding panels are available, custom built to your requirements. Complete and ready for easy installation.

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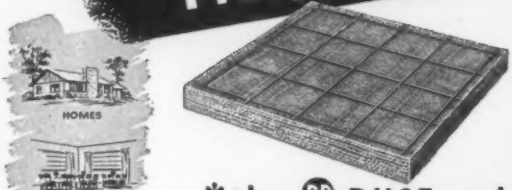
wherever you go . . .

There's a D-O* Prospect



*the RP DUST and ODOR Removing filter

Now, not only home-owners are natural prospects for RP's revolutionary dust and odor-removing D-O Filters. All businesses, including theatres, restaurants, offices . . . any place where forced air conditioning is used will be a ready customer for the greatest innovation in the field in years. Add D-O Filters to your services now . . . write today for information.

RP . . . PRODUCTS OF RESEARCH

RESEARCH PRODUCTS CORP.
Madison, Wisconsin

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ABOUT PEOPLE . . .

Continued from page 42

and air conditioning equipment field. He made no announcement as to his definite plans for future activities. Quinn's successor has not yet been appointed.

•

James H. Greene has been elected president of the Brewer-Titchener Corp., Cortland, N.Y., it was announced by E. S. Brewer, chairman of the company's board of directors. Greene joined Brewer-Titchener Corp. in 1919; he became general manager of the company's Cortland Forging division in 1930. In 1949, he was made a vice-president of the firm and served in this capacity until his new appointment. In his new position, Greene will direct Brewer-Titchener's diversified manufacturing operations.

•

Directors of Liquid Carbonic Corp. have elected **P. F. Lavedan,** president, to the newly created office of chairman of the board, in which capacity he he will continue as chief executive officer of the company. **W. A. Brown, Jr.,** now vice-president and general manager of the company, becomes president and general manager. **K. P. Miller,** in charge of machinery sales, and **J. P. Wright,** manufacturing executive, were elected vice-presidents.

W. A. Brown, Jr.

•

J. M. Johns, general manager of industrial sales for the Libbey-Owens-Ford Glass Co. and well known in the automotive and aircraft industries, has been appointed general manager of the new LOF Fiber-Glass Division. Johns succeeds Robert E. Worden, Philadelphia consulting engineer.

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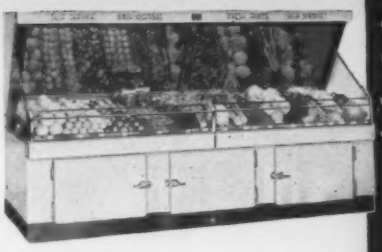

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Its size draws sales . . . because a KOCH Model 6710 Produce Case pulls the shopper's eye directly to the selling display. She buys what she sees, and a KOCH quality refrigerator guarantees that she sees the finest . . . a massed assortment of produce kept garden fresh . . . big and flavorsome as the morning they were picked . . . crisp as a brand new dollar bill!

KOCH Model 6710 display cases are designed for continuous display. Sell them in handsome, gleaming rows. You will be lining up additional profits for yourself and for your customers, too.

FIVE BIG FEATURES TO RAISE YOUR SALES

Extra wide, extra deep display!
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Display at correct buying level!
Adjustable wire display shelves!

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NORTH KANSAS CITY 16, MO.

TAC does what no other tool can do!

AT LAST! AN OPEN-END RATCHET WRENCH—the world's first true *universal* wrench. Never in the history of refrigeration and air conditioning servicing has any tool been developed to equal the ability of this patented design for connections on tubing, rods, piping, conduit, studs, etc. 64 socket sizes from 3/8" to 4". TAC speeds *all* of your wrenching jobs.

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INSTALLATIONS PAY OFF . . .

Continued from page 34

job he installs. A big factor in this "bonus" profit is the fact that he can buy the condensing units for all such installations without any condensers. All that is needed for each unit is pump, motor, and receiver.

From the operational standpoint, Bronstein has found that a 1½-hp water cooled unit installed in conjunction with the "evap" will provide the same capacity as a 2-hp air cooled job. This means that with the evaporative condenser type of installation he can use machines one size smaller all along the line than can the competitors who bid the same job on the basis of air cooled equipment. This gives him an important price advantage on closely competitive jobs.

Furthermore, this type of installation provides an ideal answer for markets where there is no cellar or no city water, or where the room in which the machinery is located must also be used for bulk storage.

From the standpoint of the market owner, these evaporative condenser installations offer definite economies, too. In addition to the saving on water, the fact that the water cooled machines operate at lower head pressures results in lower power costs.

Perhaps the most important point, however, in the consideration of the market owner, is the fact that the evaporative condenser actually serves as a cooling unit for the area in which it is located. This means that space which normally could be used only for a machinery room can also be used for bulk storage of dry produce. Bronstein cites one example, for instance, where the evaporative condenser was installed in a cellar area in which summer temperatures used to run as high as 90 F, making it virtually unusable for food storage purposes. After installation of the "evap," however, temperatures never ran higher than 65 F, and the market benefitted greatly through the use of this newly available storage space.

Using this kind of an installation procedure in which he can offer definite savings and advantages to the market owner—as well as net a neat bit of extra profit for himself—is it any wonder that Leo Bronstein's Capitol Refrigeration Co. gets somewhat more than its share of the food market business in its area?

S. E. LAUER RE-ELECTED YORK CORP. PRESIDENT

Stewart E. Lauer was re-elected president of York Corp. during the annual meeting of the company's board of directors held recently. He was first elected president in 1940.

At the same session the following officers were re-elected: J. Keith Louden, vice president and assistant to the president; John G. Bergdoll, Jr., vice president and production manager; John R. Hertzler, vice president and general sales manager; Rodney F. Lauer, vice president, engineering and research; Donald M. Magor, vice president and controller; Marshall G. Munce, vice president, trade relations; and William F. Lynne, secretary and treasurer. Charles A. Barnes was re-appointed assistant secretary and assistant treasurer while Carl W. Fenninger, Jr., was re-named assistant secretary.

Do you have a
VIBRATION PROBLEM?
Solve it quickly and easily—install Packless Seamless Bronze Vibration Absorbers—available to fit copper tubing in sizes from ¼" O.D. to 10⅛" O.D.
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all metal construction throughout
Fast moving Stainless Steel Refrigerator Unit . . . has streamlined smartness . . . Plus, STA-KOLD dependability, durability and low-cost operation.
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For complete information write for catalog
STA-KOLD
MODEL RA-70 R
Available from 20 to 70 cu. ft. Remote and Self-contained.
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This Man is the Handy & Harman field engineer—one of a corps specially chosen and trained for just one purpose—to help manufacturers get the full benefit of the remarkable speed and economy that come naturally with proper use of EASY-FLO and SIL-FOS. This man can help you produce better joints—speed up output—cut costs. His service is yours, free—just contact our nearest office or dealer and say when you'd like a field engineer to call.

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Get your teeth into this: Ranco controls are available for more than 4,000 replacement installations — refrigerators, milk coolers, water coolers, commercial units — almost every type of job you'll ever tackle. That, and because of their high quality and dependable accuracy, is the reason why *more Ranco controls are in use than any other kind.*

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WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROL

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HERE'S HOW!

Edited by
Warren W. Farr

Another Answer For Mr. Sismilich

A few issues back we published in these columns a letter from Howard Sismilich, of Howard's Refrigeration Service, Port Ewen, N. Y., concerning a 5-ton packaged air conditioner from which he could get very little cooling effect.

At that time we offered what we thought to be a likely solution to the problem, based on the information Mr. Sismilich had given us. Now comes a letter from Leo Mossoian of Detroit, Mich., in which he offers this suggestion:

"If your solution does not help Mr. Sismilich, I suggest that he look for an obstruction at the discharge grille of the unit. I ran across a conditioner once which had blown the insulating blocks loose from inside the plenum and had them pushed up against the discharge grille.

"In addition, Mr. Sismilich might make certain that there is no accumulation of dirt in the cooling coil itself which is retarding air flow and resulting in an icing up condition."

Thanks, Mr. Mossoian!

Creating Confidence: Always Be Courteous

Courtesy is a "must" in meeting the customer. The customer should always be right, as far as you're concerned.

Never engage in an argument with the customer, even though you know that he is wrong. You may win the argument, but the chances are you'll lose the customer.

After all, the prime function you have is to render speedy, competent service. If you make a mistake, admit it. Alibi Ikes don't make much of a hit with customers.

If you own up to a mistake, the customer will respect your thruthfulness. And he'll call you again when he has work that needs doing.

Test Your Equipment— Is It Up to Par?

No service man—and no servicing organization—can operate for long without up-to-date test equipment. No matter how efficient you may be in other ways, you can't operate with test equipment that's outmoded and unreliable.

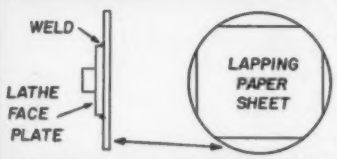
Every few months—twice a year, at least—it will pay you to survey the condition of your equipment, and perhaps compare it with the newer equipment that has been introduced since you bought it. You may find that, because of certain changes in the types of jobs you're doing, you'll want to make some changes in your test equipment, too.

Manufacturers of voltmeters, ammeters and other electrical testing devices are constantly making changes and improvements in their products. Your wholesaler will gladly explain what's new in this kind of equipment.

Remember, if your test equipment isn't precise and accurate, it's worthless. With first-class, up-to-date equipment, you save time; and time is valuable in helping you perform more servicing jobs.

All of this goes into building a good reputation for your company—a reputation for first-class, accurate work on even the toughest jobs. To get the jump on the other fellow, you have to out-perform him on service jobs, and good test equipment will help you to do it.

I do it this way...



YOU will cease the slow, laborious method of hand lapping of valve plates, etc., once you have tried this power lapping disc.

A 12" disc about ½" thick is welded to your lathe faceplate and trued in the lathe. A sheet of ordinary coarse lapping paper is shellacked to the plate, and the corners trimmed. With the lathe operated at high speed the work is held to the outer part of the plate and shifted in position from time to time. A perfect finish can be obtained in a short time. Large G.E. plates yield to this method even when they are badly worn.

The shellac need not be perfectly dry, since it will hold when tacky and also permit easy release of the worn paper. When cleaning the disc, use alcohol.

Harry W. Custer, Center Line, Mich.

I do it this way...

I HAVE been called in several times by owners of old type refrigerators who complain of loud squeaking noises when the unit is running.

I find that belt squeal is usually the cause of this noise. After some years of service, the sides of the V-belt wear smooth and there is a slight slippage as the belt passes around the small pulley.

The remedy that I've discovered for this annoying squeal is to touch both sides of the belt slightly with a cake of paraffin or a piece of candle while the unit is running. Repeating the application at regular intervals will prevent a recurrence of the noise.

—Challen H. Wells, Brighton, Colo.

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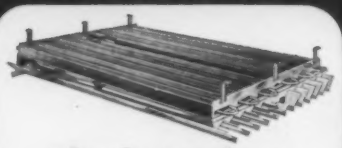
Buy Peerless
FOR PERFORMANCE



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Flash Pans

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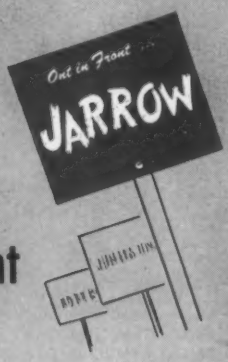


REFRIGERATOR
DOOR GASKETS
AND ACCESSORIES

JARROW PRODUCTS
430 NO. LA SALLE ST., CHICAGO 10

Circle No. 80 on Reader Service Card

Grease the Skids For Easier Positioning

Ever have trouble getting a line of continuous display cases backed up flush against the wall in a food market installation? It can be an awful headache if you don't go about it right. But like anything else, it's comparatively easy when you know how.

Here's the method used by one commercial refrigeration dealer we know.

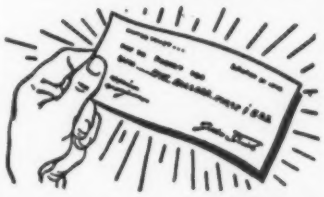
As he works each piece of equipment into place, he sets the case on a series of 1-inch boards spaced about 5 feet apart. These boards are laid on the floor in such a manner that the ends of the boards nearest the wall are at least the width of the case away from the moulding.

Tops of these boards are thoroughly greased before the case is set on them. Then the case is simply pushed straight back into position against the wall. The grease from the boards greases the bottom of the case sufficiently so that it will slide readily over the floor.

HARRIS SUPPLY OPENS BRANCH IN LANSING

Harris Supply Co., refrigeration parts wholesaler, has announced the opening of a new branch store located at 3110 N. East St., Lansing, Mich. Jean La Ronde is manager of the Lansing operation, formal opening of which was observed during the week of Feb. 4 to 8.

WANT TO EARN $5?



You don't have to be a writer or a literary genius! Just jot down some of the shortcuts you've developed in your maintenance or installation work and send them to HERE'S HOW EDITOR, COMMERCIAL REFRIGERATION AND AIR CONDITIONING. Your $5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

Circle No. 81 on Reader Service Card

X13

TO REPLACE
CARBON TET
FOR SHOP USE . . .

SEE YOUR
LOCAL JOBBER

Send for Instruction Sheet

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261 EAST 161st ST.
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NO Other Line Gives You So Much Satisfaction, Quality, Safety, Economy!

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DEHYDRATORS
(SIZES 5 CU. IN. TO 200 CU. IN.)

QUALITY and SAFETY, requirements of the industry, are assured you by this Underwriters' Laboratories listing. Lower first cost and trouble-free operation provide maximum ECONOMY. Insist on RAPID Refillable Dehydrators!

All Sizes Now Available in New Metal Edged Boxes.

DESIGN-ENGINEERED FOR RUGGED SERVICE

Fine PRODUCTS CO.
4837 S. Western Blvd., Chicago 9, Ill.

Circle No. 82 on Reader Service Card

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," $4.00 minimum, limit 25 words. For all other classifications, $4.50 minimum for 25 words or under, each additional word 15c; boldface type or all capitals, $7.50 minimum for 25 words or under, each additional word 20c. Box addresses count as five words, other addresses by actual word count. All advertisements in this section are payable in advance.

TRAINING AVAILABLE

Course on sealed unit rebuilding trade secrets disclosing exclusive methods for all operations. $12.50 or write for details. H. Custer, Box 98, Center Line, Michigan.

EQUIPMENT WANTED

Wanted—G.E. Motors (6W or 9W) or equal. Will Buy Job Lot or Surplus. Address Box 3152, Commercial Refrigeration and Air Conditioning.

LECTRODRYER APPOINTS WELLMON IN N. Y. STATE

G. R. Wellmon of Erie, Pa., has been named representative for Pittsburgh Lectrodryer Corp. in a territory which includes central and western New York state.

George L. Simpson, vice president of Pittsburgh Lectrodryer, said Wellmon's appointment reflects expanded Lectrodryer service in such key cities as Elmira, Utica, Binghamton, Syracuse, Rochester, Niagara Falls and Buffalo. The company manufactures equipment for dehumidifying air, gases and organic liquids.

Crippled Children need YOUR help

Crippled children want to walk, talk and play like other children. They can if you help by giving to Easter Seals. Give generously—your dollars mean new lives for America's crippled children.

19th ANNUAL EASTER SEAL APPEAL
March 13 to April 13

NO MORE FREEZE-UPS
of expansion valves or capillary tubes!

ICE-X works like magic

SERVICE MEN SAY: "ICE-X IS GREAT!"

When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy . . . ICE-X is non-corrosive —harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems . . . Order from your jobber. If no jobber, order direct.

Service doesn't falter when it comes from Harry Alter

Jobbers: Ask for special offer!

The HARRY ALTER CO.
Exclusive ICE-X Distributor
1728 S. Michigan Ave. Chicago 16, Illinois

Circle No. 84 on Reader Service Card for more information

DEFINITELY THE CORRECT MOTOR CAPACITOR

So many refrigerator makes . . . so many motor types . . . so many kinds of capacitors! How's a serviceman going to pick the right replacement?

That's easy. Just ask your Aerovox distributor about Aerovox listings, the Capacitor Selector, and the Emergency Capacitor. They'll help you handle that replacement in a jiffy.

AEROVOX Capacitors

FOR RADIO-ELECTRONIC INDUSTRIAL APPLICATIONS
AEROVOX CORPORATION
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Export: 41 E. 42nd St., New York, N. Y.
Cable Address: AEROCAP, N. Y.
In Canada: AEROVOX CANADA LTD. Hamilton, Ont.

Circle No. 83 on Reader Service Card

YOU'LL NEVER GET ANY WATER OUT OF ANSUL GAS, NO MATTER HOW HARD YOU SQUEEZE. EACH CYLINDER IS ANALYZED AFTER FILLING AND GUARANTEED MOISTURE-FREE.
ANSUL
J. A. CORMACK

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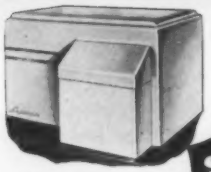
NOW! JUST WHAT YOUR TRADE IS LOOKING FOR!



STANDARD MODEL

Fits on a table or back bar . . . only 19" high and 34" long! But it's big in capacity... freezes 100 lbs. of crystal-clear ice tips per day!

Lipman "ICE BOY"

JUNIOR MODEL

Here's the "big brother" standard size Ice Boy with big volume capacity . . . up to 2000 large ice tips per day! You can't help but make money with these two "Ice Boys" in your line. Write for details TODAY!

YATES-AMERICAN, Beloit, Wisconsin
I am interested in making money selling Lipman Ice Tip Machines. Send details.

Name _____ Title _____

Company _____

Address _____

City _____ State _____

Easy Sales! Fast Profits!

Yates-American
BELOIT, WISCONSIN

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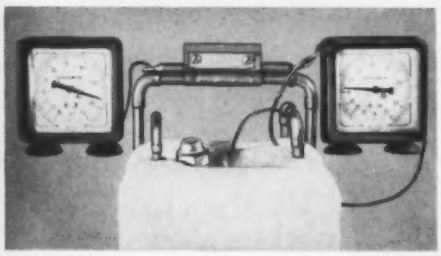
Liquid-charged expansion valves give you positive bulb control IN ANY POSITION

Here's Proof



Dramatic proof of the efficiency of A-P Liquid-Charge. In the unit pictured above, there is a 54-degree temperature difference between valve and bulb, *and the valve is mounted upside down!* Despite these conditions, the bulb provides perfect control. Unusual? Yes; but typical of the efficiency and dependability you can expect from A-P Liquid-Charged Valves!

Here's an all-purpose valve serving every requirement . . . low temperature units, commercial applications, air conditioning. Select the capacity you need, install . . . and enjoy day-in, day-out dependable service.

Unusual applications are no problem when you install an A-P Liquid-Charged Expansion Valve. Install it upside down . . . at any angle . . . even lower than the bulb — in fact, in absolutely *any* required position, and in *any* ambient temperature. You are sure to get positive, precise control.

Manufactured to the highest standards of quality, every A-P valve has a rugged, leakproof, forged brass body and corrosion-resistant, stainless steel needle and seat. Power element is liquid-charged and all parts are silver soldered for durability. Yes, quality construction throughout to assure years of economical, trouble-free service.

Every A-P valve is designed for original equipment or for replacement service. Get the full story. Write today for Bulletin R-16.

DEPENDABLE Controls

A-P CONTROLS CORPORATION
(formerly Automatic Products Company)
2486 N. 32nd Street • Milwaukee 45, Wis
In Canada: A-P Controls Corporation Ltd., Cooksville, Ont.

Stocked and Sold By Good Refrigeration Wholesalers Everywhere • Recommended and Installed By Leading Refrigeration Service Engineers

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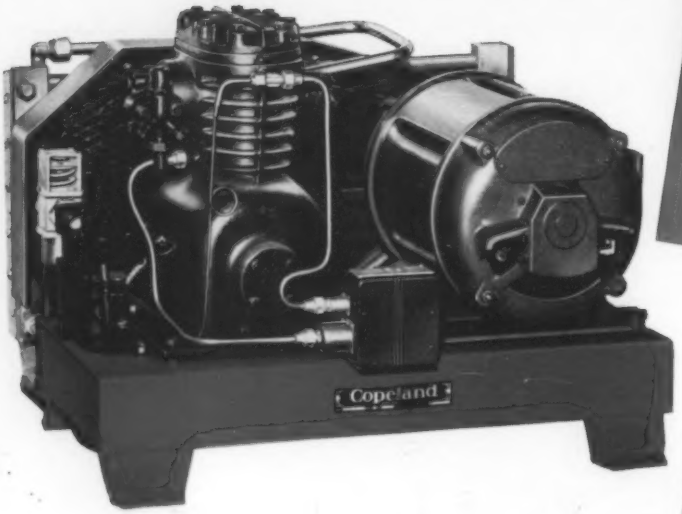
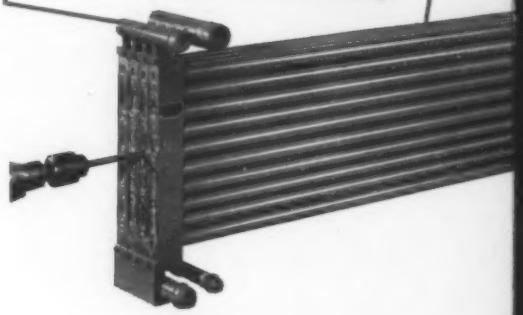
Copeland *Refrigeration units*



. . . from 3/4 HP. through 5 HP.

with Halstead & Mitchell *Cleanable* CONDENSERS



When you install Copeland refrigeration units, you invest in peace of mind. Their field-proved dependability is evidenced by the millions in use. In over 30 years of refrigeration engineering, Copeland has many remarkable achievements.

Copeland units are noted for low-cost operation, positive protection, minimum maintenance. Top efficiency in water-cooled models is assured by use of Halstead & Mitchell cleanable condensers. Belt life is increased by multi-belt drive. The simple design of the rugged, fabricated-steel base makes all fittings easily accessible. Compact design uses little space. You'll find a unit to fit your needs. Sizes 3/4 HP. through 5 HP.

HM condensers can be cleaned. Water tubes are accessible at both ends for spiral cleaning tool to restore efficiency. A true counter-flow relationship is achieved between the coolant and the refrigerant through unique, seamless copper tube-within-a-tube construction. Water and space requirements are reduced substantially.

465-466

RIWC

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